DUPLICATE ALSO

METEOROLOGICAL OFFICE
10 JUL 1995
LIBRARY

UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

JUNE, 95

Forecasting Systems Division
Meteorological Office
London Rd
Bracknell
Berkshire
RG12 2SZ

This report has not been published. Permission to quote from it should be obtained from the Assistant Director of the above Meteorological Office Division

ORGS UKMO U

National Meteorological Library
FitzRoy Road, Exeter, Devon. EX1 3PB

Distribution List

Mr B Sumner	NMC, Victoria, Australia
Dr H W Christ	Deutscher Wetterdienst, Hamburg, Germany
Ms C Nelson	NMC, Washington, USA
Mr B Lacroix	SCEM METEO-FRANCE.
Mr E A Meindl	National Data Buoy Centre, Stennis Space Center, USA
Dr H Mitchell	Recherche en Prévision Numérique, Quebec, Canada.
Mr G Verner	Canadian Meteorological Centre, Quebec, Canada
Permanent Rep. with WMO	Moscow, Russia
Mr Nobuo Sato	JMA, Tokyo, Japan
Dr B Strauss	ECMWF, Reading, UK
Dr M J Uddstrom	Met. Service, Wellington, New Zealand
Mr R S Bell	Met. Office, Bracknell, UK
Mr J R Leighton	Met. Office, Bracknell, UK
Mr R W Lunnon	Met. Office, Bracknell, UK
Dr C C Heasman	Met. Office, Bracknell, UK
Mr D B Shaw	Met. Office, Bracknell, UK
Mr S G Smith	Met. Office, Bracknell, UK
National Meteorological Library	Met. Office, Bracknell, UK

CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

...oooOOOooo...

1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

DR C. Heasman
Head of Observation Processing and Monitoring Section
Forecasting Systems Division
Meteorological Office
London Road
Bracknell
Berkshire
United Kingdom
RG12 2SZ

2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution . Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25	850-1000
26	100-300
27	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

...oooOOOooo...

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison	:Background field from Bracknell global model.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed ($m\ s^{-1}$). :Wind direction (Degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 *hPa*	(pressure)
	:25 $m\ s^{-1}$	(vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias|	$\geq$ 4 hPa	(pressure),
	$\geq$ 5 $m\ s^{-1}$	(wind speed),
	$\geq$ 30 degrees	(direction).
2.SD	$\geq$ 6 hPa	(pressure),
	$\geq$ 80 degrees	(direction).
3.PGE	$\geq$ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BONH	ALL	MSLP	SUR	51	0	0	1.5	5.7	5.9
CZ9742	ALL	MSLP	SUR	55	55	100	0.0	0.0	0.0
C6FA6	ALL	MSLP	SUR	25	0	0	1.2	-6.3	6.4
C6IL3	ALL	MSLP	SUR	53	0	0	1.0	5.2	5.3
ELRE5	ALL	MSLP	SUR	68	0	0	1.7	8.8	9.0
OZBL2	ALL	MSLP	SUR	45	0	0	0.9	5.9	6.0
P3XM4	ALL	MSLP	SUR	20	1	5	2.6	-4.9	5.6
TFLE	ALL	MSLP	SUR	25	1	4	1.6	-4.8	5.1
UOVE	ALL	MSLP	SUR	27	0	0	0.8	-5.8	5.8
UPIU	ALL	MSLP	SUR	26	0	0	1.3	6.1	6.2
UTTT	ALL	MSLP	SUR	28	0	0	1.1	-5.2	5.4
UVHZ	ALL	MSLP	SUR	30	30	100	0.0	0.0	0.0
VCQL	ALL	MSLP	SUR	20	0	0	1.0	-7.3	7.3
WAV4647	ALL	MSLP	SUR	30	16	53	3.7	-11.0	11.6
WCB5820	ALL	MSLP	SUR	50	0	0	3.3	9.3	9.9
WC5932	ALL	MSLP	SUR	22	0	0	2.3	-4.2	4.8
3EAY5	ALL	MSLP	SUR	20	0	0	1.0	-5.0	5.1
3EJH6	ALL	MSLP	SUR	21	0	0	1.1	5.7	5.8
3ESE9	ALL	MSLP	SUR	33	0	0	0.9	4.4	4.5
3EWK9	ALL	MSLP	SUR	23	0	0	0.9	5.6	5.7
3FLS2	ALL	MSLP	SUR	36	0	0	3.2	-6.4	7.1
WIND SPEED									
D5AN	ALL	SPEED	SUR	27	0	0	3.6	5.0	6.2
ELDT6	ALL	SPEED	SUR	28	0	0	3.0	5.1	6.0
ELMF9	ALL	SPEED	SUR	67	2	3	3.1	5.1	6.0
ELPB8	ALL	SPEED	SUR	71	0	0	3.7	6.5	7.5
FNPA	ALL	SPEED	SUR	22	0	0	5.0	6.5	8.2
FNYT	ALL	SPEED	SUR	39	1	3	3.0	5.9	6.6
FNZQ	ALL	SPEED	SUR	26	0	0	5.1	5.3	7.4
HSGX	ALL	SPEED	SUR	20	0	0	5.6	12.0	13.2
KCGH	ALL	SPEED	SUR	57	0	0	2.6	5.1	5.7
OVLP	ALL	SPEED	SUR	23	0	0	4.3	7.1	8.3
UIAG	ALL	SPEED	SUR	38	0	0	2.8	5.1	5.8
VJBE	ALL	SPEED	SUR	27	0	0	5.1	5.4	7.4
V2TZ	ALL	SPEED	SUR	29	0	0	5.3	6.4	8.3
Y5EJ	ALL	SPEED	SUR	41	0	0	5.0	5.4	7.4
44144	ALL	SPEED	SUR	103	0	0	2.9	5.2	5.9
46054	ALL	SPEED	SUR	118	0	0	3.2	5.0	5.9
5LOU	ALL	SPEED	SUR	23	0	0	2.2	5.0	5.5
9HAS4	ALL	SPEED	SUR	32	0	0	4.0	6.3	7.5
WIND DIRECTION									
CG2614	ALL	DIRN.	SUR	29	0	0	48.1	33.7	58.7
PCDE	ALL	DIRN.	SUR	23	0	0	44.8	-32.8	55.5
WDZW	ALL	DIRN.	SUR	25	0	0	47.6	-30.1	56.3
44013	ALL	DIRN.	SUR	43	0	0	21.7	-36.8	42.7
45132	ALL	DIRN.	SUR	28	0	0	46.1	-38.3	59.9
45139	ALL	DIRN.	SUR	37	0	0	80.6	-32.0	86.7
46147	ALL	DIRN.	SUR	29	0	0	15.5	-31.3	35.0
5LOU	ALL	DIRN.	SUR	23	0	0	58.4	-43.8	73.0
51007	ALL	DIRN.	SUR	69	0	0	26.9	-40.0	48.2
51307	ALL	DIRN.	SUR	28	0	0	93.1	-39.1	100.9
52302	ALL	DIRN.	SUR	20	0	0	55.0	-41.4	68.9
62126	ALL	DIRN.	SUR	83	0	0	47.8	-37.7	60.9

AVAILABILITY – SHIP/SYNOP – JUNE 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19439

FIGURE 1

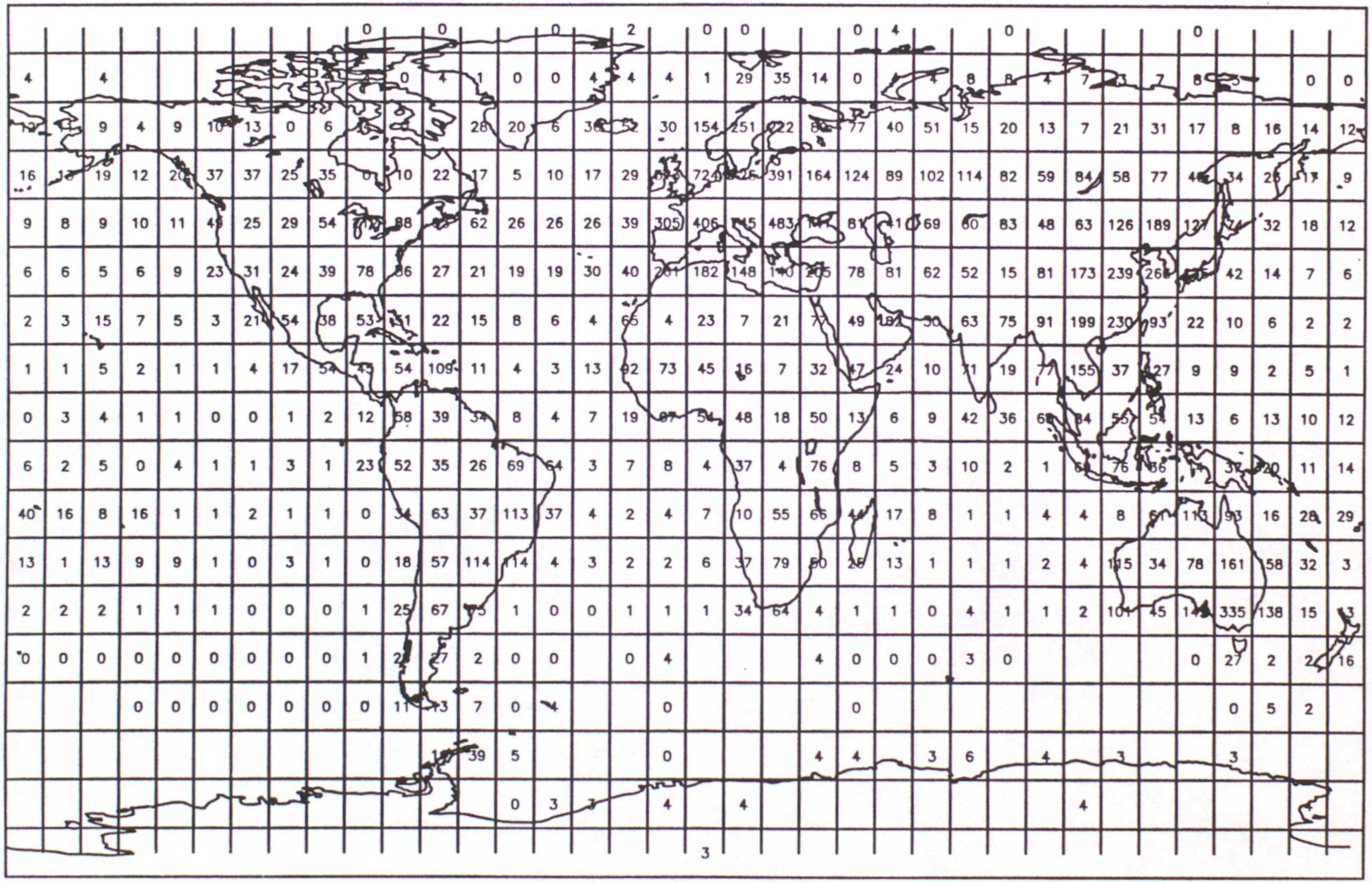


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1. |bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 $m\ s^{-1}$ (wind speed),
$\geq$ 30 degrees (direction).

2. SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3. PGE $\geq$ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
14919	-39.9	27.4	ALL	MSLP	SUR	73	28	38	6.6	6.3	9.1
16944	-53.0	71.9	ALL	MSLP	SUR	89	14	16	5.5	7.1	9.0
16946	-45.9	83.3	ALL	MSLP	SUR	77	17	22	7.1	-1.7	7.3
16949	-40.8	32.2	ALL	MSLP	SUR	78	37	47	4.4	7.1	8.4
16950	-50.1	42.6	ALL	MSLP	SUR	85	21	25	6.6	2.3	7.0
33532	-36.7	-9.1	ALL	MSLP	SUR	95	33	35	5.5	2.5	6.1
55903	-46.9	141.0	ALL	MSLP	SUR	83	7	8	2.7	-10.7	11.1
56903	-32.1	109.4	ALL	MSLP	SUR	73	51	70	3.2	-7.5	8.2
56907	-53.0	133.9	ALL	MSLP	SUR	90	12	13	6.3	3.1	7.0
56918	-53.3	117.6	ALL	MSLP	SUR	81	39	48	5.5	3.3	6.4
63662	56.4	7.3	ALL	MSLP	SUR	104	4	4	6.3	-5.1	8.1
64529	59.3	-26.1	ALL	MSLP	SUR	178	53	30	0.8	0.1	0.8
WIND SPEED											
52522	10.9	155.0	ALL	SPEED	SUR	30	0	0	1.7	-6.5	6.7
55587	-24.3	157.6	ALL	SPEED	SUR	731	0	0	2.2	-5.9	6.3
WIND DIRECTION											
46557	34.4	-166.4	ALL	DIRN.	SUR	140	0	0	34.6	-32.3	47.3
46558	39.9	-160.2	ALL	DIRN.	SUR	165	0	0	19.2	-30.7	36.2
55586	-41.7	153.0	ALL	DIRN.	SUR	708	0	0	62.2	-71.9	95.1

AVAILABILITY – DRIBU – JUNE 1995

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4041

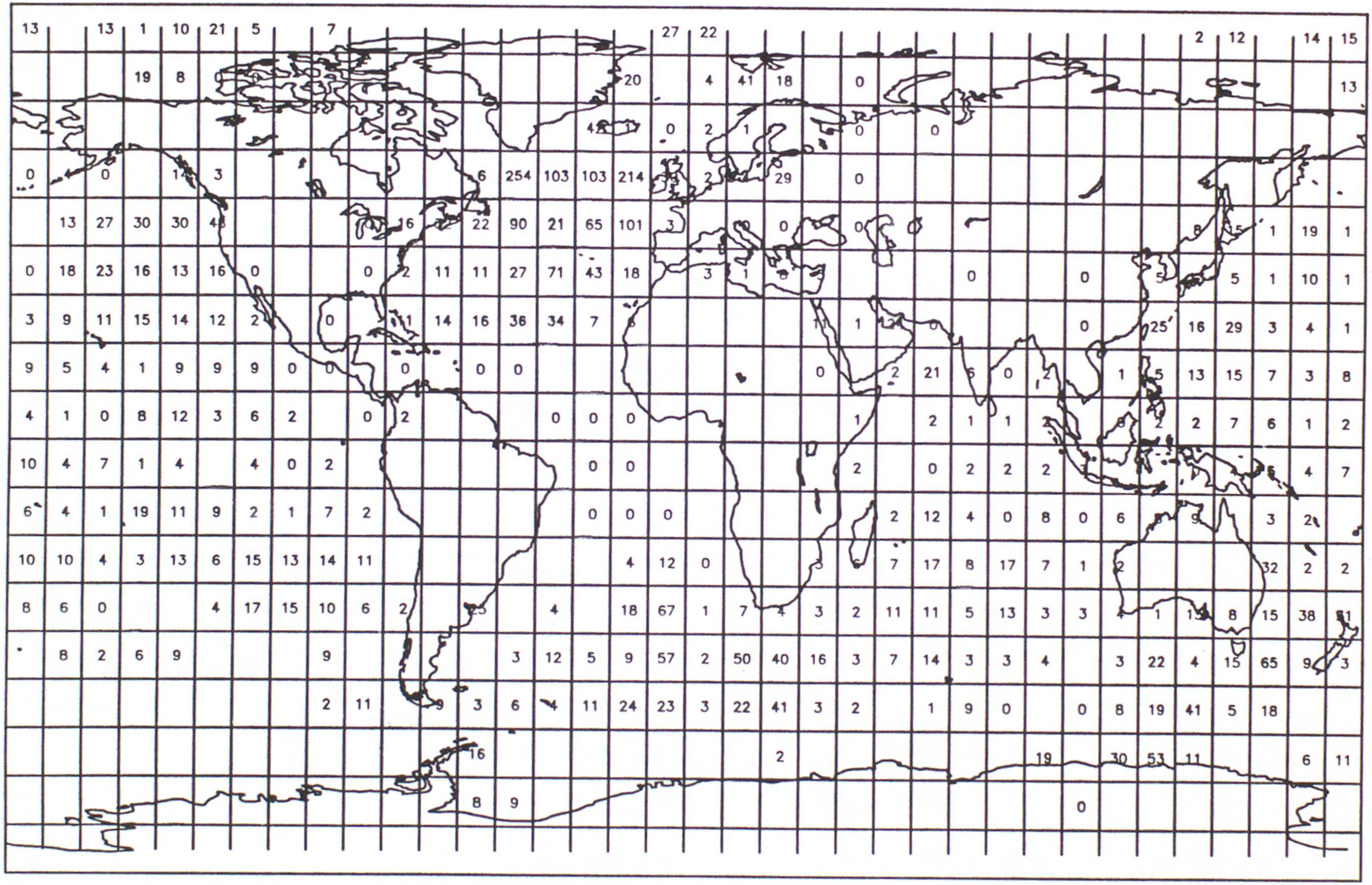

13 13 1 10 21 5 7 27 22 2 12 14 15
19 8 20 4 41 18 0 13
42 0 2 1 0 0
0 0 14 3 6 254 103 103 214 2 29 0
13 27 30 30 48 16 22 22 90 21 65 101 3 0 0 0 8 15 1 19 1
0 18 23 16 13 16 0 0 2 11 11 27 71 43 18 3 1 0 0 0 5 5 1 10 1
3 9 11 15 14 12 2 0 11 14 16 36 34 7 11 1 0 0 25 16 29 3 4 1
9 5 4 1 9 9 9 0 0 0 0 0 0 2 21 6 0 2 1 5 13 15 7 3 8
4 1 0 8 12 3 6 2 0 2 0 0 0 1 2 1 1 2 8 2 2 7 6 1 2
10 4 7 1 4 4 0 2 0 0 2 0 2 2 2 5 4 7
6 4 1 19 11 9 2 1 7 2 0 0 0 2 12 4 0 8 0 6 9 3 2
10 10 4 3 13 6 15 13 14 11 4 12 0 3 6 7 17 8 17 7 1 2 32 2 2
8 6 0 4 17 15 10 6 2 25 4 18 67 1 7 4 3 2 11 11 5 13 3 3 4 1 13 8 15 38 31
8 2 6 9 9 3 12 5 9 57 2 50 40 16 3 7 14 3 3 4 3 22 4 15 65 9 3
2 11 9 3 6 4 11 24 23 3 22 41 3 2 1 9 0 0 8 19 41 5 18
16 2 19 30 53 11 6 11
8 9 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)

SELECTION CRITERIA :NOBS ≥ 20 ,and one or more of the following:

1.|bias| ≥ 4 hPa
2. SD ≥ 6 hPa
3.PGE ≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	110	2	2	84	1.1	4.3	4.4
60468	35.6N	6.2E	1052	S8	106	106	100	40	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	112	111	99	100	0.0	5.0	5.0
60670	24.6N	9.5E	1054	S8	109	1	1	99	0.9	8.9	8.9
63333	11.1N	39.7E	1916	MS	103	1	1	86	1.4	7.1	7.2
63453	8.8N	39.8E	1062	S	58	1	2	97	1.2	11.0	11.1
63478	5.1N	44.6E	320	MS	51	1	2	2	1.9	6.7	7.0
63801	4.9S	29.6E	885	S8	31	0	0	100	0.8	8.0	8.0
68014	19.6S	18.1E	1411	S8	63	1	2	95	2.0	-6.1	6.4
68442	29.1S	26.3E	1354	S8	113	0	0	96	0.9	-5.7	5.8

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
29999	52.5N	99.8E	1570	S8	75	74	99	96	0.0	-12.7	12.7
30554	54.5N	113.6E	995	MS	58	4	7	97	1.4	10.5	10.6
36870	43.4N	77.0E	663	MS	52	52	100	100	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	62	1	2	98	1.1	6.2	6.3
40743	36.2N	57.7E	941	MS	112	0	0	46	1.4	-6.0	6.2
40762	35.3N	59.2E	1333	MS	109	28	26	99	1.0	-13.4	13.4
40763	35.2N	58.5E	1060	MS	34	0	0	21	1.6	-6.6	6.8
40783	32.4N	49.7E	1972	MS	32	0	0	72	1.0	-6.2	6.3
40789	33.8N	55.1E	921	MS	54	1	2	85	1.8	7.2	7.4
40836	30.8N	51.7E	1880	M	51	1	2	76	1.0	7.4	7.5
40859	29.0N	53.7E	1383	MS	53	3	6	98	0.9	8.6	8.6
41244	24.2N	55.8E	299	M	116	0	0	1	1.1	8.0	8.1
41254	23.1N	57.7E	1755	S8	84	84	100	99	0.0	0.0	0.0
44277	46.4N	96.3E	2147	MS	73	0	0	18	1.4	-4.0	4.2
44416	28.6N	81.6E	720	MS	58	1	2	5	1.3	5.6	5.7
44477	27.0N	87.4E	1445	S8	47	44	94	98	9.4	1.4	9.5
52602	38.8N	93.4E	2734	S	114	0	0	18	1.7	-5.1	5.4
56287	30.0N	103.0E	629	M	115	0	0	2	1.6	4.4	4.7
56444	28.5N	98.9E	3488	S	113	113	100	99	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	103	0	0	93	2.2	7.5	7.8
57816	26.5N	106.7E	1222	MS	114	112	98	99	1.1	13.6	13.6

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	43	0	0	2	2.0	-4.0	4.5
80434	9.2N	66.0W	125	MS	30	0	0	0	1.1	-5.6	5.7
82704	7.6S	72.7W	170	MS	64	1	2	2	1.4	-4.7	4.9
82825	8.8S	63.1W	95	MS	56	0	0	27	1.4	-6.0	6.2
83208	12.7S	60.1W	652	MS	86	1	1	0	1.1	4.0	4.1
83214	10.3S	54.9W	285	MS	45	0	0	91	1.1	-7.2	7.3
83235	12.3S	46.4W	660	MS	77	2	3	99	0.8	6.4	6.4
83295	13.4S	39.9W	755	MS	31	0	0	94	0.7	-4.8	4.9
83332	14.1S	46.4W	950	MS	75	20	27	97	1.8	13.6	13.7
83376	15.9S	49.0W	730	MS	80	0	0	34	1.2	-4.1	4.3
83408	14.3S	43.8W	556	MS	58	0	0	100	1.0	11.1	11.1
83423	16.7S	49.3W	729	MS	79	0	0	76	1.0	-5.7	5.8
83488	17.8S	42.9W	1097	MS	75	75	100	100	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	78	5	6	21	2.3	-10.3	10.6
83531	18.6S	46.5W	896	MS	59	0	0	81	0.9	-7.7	7.8
83587	19.8S	43.9W	850	MS	82	0	0	94	1.0	-8.2	8.3
83689	21.3S	43.8W	1171	MS	55	0	0	85	0.9	4.3	4.4
83704	22.3S	53.9W	369	MS	68	9	13	16	1.1	-10.4	10.5
83781	23.5S	46.6W	792	MS	88	0	0	95	1.7	-5.3	5.6

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
84472	7.1S	78.5W	2622	S	34	1	3	94	1.9	-7.3	7.5
84531	9.2S	78.5W	21	MS	49	0	0	0	1.7	4.2	4.5
84658	12.6S	69.2W	266	MS	117	1	1	2	2.1	5.9	6.3
84686	13.6S	72.0W	3249	S	119	1	1	17	1.8	-5.9	6.2
84782	18.1S	70.3W	469	MS	118	1	1	10	1.6	6.0	6.2
85264	18.5S	64.1W	1998	S	47	0	0	19	2.9	-4.7	5.5
85312	19.8S	63.9W	992	S	43	4	9	98	1.1	-11.0	11.1
85406	18.3S	70.3W	58	M	108	0	0	4	1.3	5.0	5.2
85486	28.6S	70.8W	526	MS	25	0	0	44	1.7	-4.2	4.5

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
72618	44.5N	70.5W	205	MS	28	0	0	64	1.0	4.4	4.5
76118	30.4N	109.7W	1040	MS	37	0	0	100	1.1	-10.7	10.8
76160	29.1N	111.0W	211	MS	40	0	0	0	1.1	-4.0	4.1
76373	25.3N	105.8W	1967	MS	66	58	88	98	0.6	14.2	14.2
76539	22.1N	101.0W	1871	MS	96	0	0	83	1.1	-4.9	5.0
76632	20.1N	98.7W	2417	MS	49	0	0	98	1.8	-6.5	6.7
76658	19.3N	103.6W	723	MS	21	21	100	10	0.0	0.0	0.0
76726	18.9N	99.3W	1560	MS	83	0	0	100	1.2	-8.3	8.4
76762	17.5N	99.5W	1360	MS	73	1	1	99	1.0	10.9	10.9
76848	16.3N	92.1W	1530	MS	94	8	9	98	2.6	-13.2	13.5

WMO REGION 5:

NO SUSPECTS IN THIS REGION

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	89	0	0	100	0.9	-5.0	5.1
08221	40.5N	3.6W	633	MS	115	0	0	90	1.4	5.3	5.5
08232	40.9N	1.9W	1063	S8	59	0	0	100	1.2	5.5	5.6
10736	49.0N	8.9E	245	M	23	23	100	0	0.0	0.0	0.0
11346	47.3N	12.8E	917	S	67	0	0	79	1.3	-4.4	4.6
15052	47.4N	25.6E	1541	S8	114	1	1	90	1.3	-4.8	5.0
16020	46.5N	11.3E	1461	MS	78	78	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	110	0	0	99	1.3	-7.3	7.4
17084	40.6N	35.0E	837	MS	114	0	0	100	1.2	6.4	6.5
17190	38.8N	30.5E	1034	S8	112	0	0	89	1.1	4.0	4.1
17260	37.1N	37.4E	855	MS	111	106	95	99	7.9	10.5	13.1
37228	43.1N	44.6E	670	MS	51	0	0	61	1.2	-4.2	4.4
40184	31.8N	35.2E	809	S8	118	0	0	97	1.2	5.6	5.7

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S	104	104	100	7	0.0	0.0	0.0
89264	71.4S	68.9W	780	S8	102	1	1	44	3.6	7.0	7.9
89705	81.5S	3.7E	2410	S	28	28	100	0	0.0	0.0	0.0
89757	73.8S	55.7E	2775	S7	51	51	100	31	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	72	3	4	46	2.8	-9.0	9.4
89805	74.1S	109.8E	3070	S7	64	17	27	28	6.6	1.4	6.7
89811	66.7S	112.9E	1362	S8	73	4	5	45	3.3	-7.7	8.4
89828	74.5S	123.0E	3280	S7	105	28	27	66	4.5	8.5	9.6
89847	67.6S	146.0E	30	MS	105	1	1	2	3.2	-6.0	6.8

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89860	74.2S	160.3E	1772	S8	101	1	1	5	3.4	-5.1	6.1
89861	74.5S	160.5E	1525	S8	99	3	3	13	2.9	-7.4	7.9
89863	74.9S	163.1E	30	MS	103	19	18	32	6.1	-4.4	7.5

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: June, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	69	0	1	1.9	1.1	71	0	3	0	10.1	0.8
AAL	4877	0	1	1.6	0.0	4879	0	2	0	7.6	1.2
AAN	189	1	3	1.8	-0.4	174	0	4	1	9.7	1.4
AAR	2019	1	1	1.7	-0.2	2006	0	3	1	9.0	1.0
ACA	1224	0	1	1.9	-0.1	1242	0	2	1	6.8	1.2
ACI	43	2	2	2.3	1.6	41	0	0	0	8.4	0.9
ACU	44	2	5	1.5	-0.9	45	0	2	0	9.7	1.8
AEA	227	5	100	4.6	2.0	217	0	11	0	9.4	0.5
AEL	370	1	3	1.9	-0.3	371	0	4	0	8.2	1.3
AFL	316	1	100	2.6	1.3	314	0	6	2	7.7	1.5
AFR	1238	1	3	1.7	-0.3	1255	0	4	0	7.6	1.0
AIC	37	0	0	1.9	1.0	39	0	0	0	9.2	2.1
AIH	184	1	2	1.5	0.1	185	0	2	0	7.6	0.9
AJJ	95	1	1	2.6	-1.0	105	0	55	0	15.5	1.8
AMT	443	0	1	1.2	0.3	451	0	2	0	6.3	0.9
AMX	244	1	1	1.6	-0.2	244	0	2	0	8.5	1.8
ANA	750	1	1	2.0	-0.5	749	0	2	1	8.4	1.8
ANZ	3349	1	2	1.9	0.1	3326	0	2	0	8.6	1.1
AOM	691	1	2	1.5	0.6	692	0	2	1	7.4	1.2
ARG	33	3	3	1.5	0.6	32	0	0	0	6.6	-0.4
ARP	104	0	1	2.1	1.0	104	0	1	0	8.1	1.7
ASY	29	0	0	1.8	0.4	29	0	0	0	5.3	0.9
ATN	38	0	18	2.4	-0.7	38	0	58	0	22.3	10.6
AUA	83	0	2	1.5	-0.8	83	0	2	0	6.2	1.1
AVA	333	1	3	1.8	-0.2	336	0	3	0	8.4	1.7
AVN	38	5	8	1.9	0.5	38	0	11	0	16.1	1.5
AZA	520	0	3	1.9	0.2	528	0	2	0	7.8	1.5
BAL	404	2	12	1.6	-0.4	408	0	12	0	7.1	1.3
BAW	1711	0	3	2.0	0.2	1721	0	3	0	7.3	1.1
BBB	132	1	17	2.0	-0.9	133	0	17	0	9.0	0.6
BWA	398	1	3	1.7	0.7	401	0	4	0	7.4	1.2
CAL	1687	1	1	1.8	0.0	1687	0	3	0	8.5	0.9
CCA	79	1	5	2.7	-0.1	80	0	100	1	11.6	1.8
CDN	2500	1	1	2.0	0.3	2505	0	2	1	8.2	1.2
CES	146	0	0	1.7	0.3	150	0	3	1	9.8	0.2
CFG	939	1	1	1.9	-1.0	940	0	2	1	6.9	0.8
CKS	90	1	0	1.6	0.5	90	1	6	0	9.7	1.9
CKT	128	2	5	1.7	0.1	128	0	7	0	6.4	1.2
CLI	187	0	1	1.9	-0.3	190	0	2	0	8.0	0.7
CLX	62	2	0	1.5	-0.5	61	0	2	0	6.6	-0.5
CMI	1126	1	3	1.8	0.2	1138	0	4	2	8.4	1.8
CMM	285	0	48	1.7	0.2	287	0	7	1	6.9	0.7
COA	942	0	1	1.5	0.5	945	0	2	1	7.1	0.9
CPA	46	4	7	1.5	-0.3	46	0	2	0	11.2	0.1
CRL	241	3	4	1.5	0.1	246	0	5	2	7.4	1.7
CSA	23	0	4	1.8	-1.3	23	0	0	0	7.5	2.9
CTM	73	3	8	1.8	-0.3	76	0	8	0	7.0	1.7
CUB	197	4	8	2.5	1.3	199	1	100	1	10.9	1.5
DAF	42	0	2	2.4	-1.2	42	0	2	2	6.5	0.6
DAL	6390	0	2	1.9	0.5	6197	0	2	0	7.7	0.9
DHL	441	3	100	3.9	-1.9	440	0	4	0	9.0	0.7
DLH	3352	0	9	2.2	0.5	3343	0	12	3	7.4	1.0
DOA	211	1	7	1.3	0.0	206	0	7	0	7.5	1.2
EIA	47	2	2	1.5	-0.1	46	0	2	2	9.0	3.2
ELY	160	0	4	1.9	0.0	161	0	6	1	7.7	0.9
EVA	1689	1	2	1.9	-0.6	1691	0	2	0	9.0	1.1
EWW	27	7	15	4.0	-0.5	27	0	15	0	14.0	2.5
FDX	894	1	3	1.9	0.6	908	0	2	0	7.7	1.0
FIN	646	0	3	2.2	0.6	645	0	4	1	7.6	1.1

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FJI	624	1	4	2.0	0.9	620	0	2	0	9.9	1.0
FKC	25	0	4	2.9	-1.1	25	0	4	0	11.2	3.1
FKO	30	7	17	4.0	1.5	30	0	7	0	11.7	5.1
GAF	185	1	3	2.1	0.4	185	0	1	0	8.0	1.1
GFA	31	0	3	2.1	0.1	31	0	0	0	9.4	0.0
GIA	229	1	4	2.2	0.3	231	0	1	0	8.7	1.7
HAL	1310	0	1	1.2	0.2	1312	0	1	1	7.1	1.1
HLF	119	1	0	1.4	-0.9	121	0	2	0	8.4	0.6
HRH	78	3	5	1.6	0.5	76	0	3	0	8.3	0.9
IBE	2307	1	16	1.7	0.4	2305	0	17	0	8.5	1.0
ICE	397	0	0	1.6	-0.1	397	0	2	2	6.6	1.4
JAA	55	4	2	1.7	1.0	54	0	2	0	9.2	2.6
JAL	5967	0	1	1.8	0.3	5969	0	2	1	8.4	1.0
JAZ	64	0	2	1.6	1.0	65	0	2	0	7.1	0.4
KAL	3391	1	2	1.9	0.1	3383	0	2	0	9.1	1.3
KIW	25	8	12	2.7	2.0	25	0	4	0	9.3	2.1
KLM	2312	0	2	1.8	0.2	2304	0	3	1	7.8	1.1
LDA	145	0	8	1.7	-1.2	146	0	8	0	6.6	0.5
LDI	110	2	0	1.7	-1.2	108	0	3	1	8.2	-0.1
LIB	329	1	4	1.7	0.7	331	0	5	1	6.9	1.4
LOT	488	0	1	1.9	-0.6	487	0	3	0	7.9	0.8
LTU	857	0	4	1.8	0.3	825	0	4	1	7.2	1.2
MAH	24	0	0	1.7	-1.2	24	0	8	0	7.6	0.4
MAS	276	1	2	2.0	-0.3	277	1	4	0	11.4	1.5
MDA	189	1	3	2.7	1.0	190	1	3	1	9.5	1.8
MKD	49	0	0	1.4	-0.7	49	0	2	2	6.7	0.5
MPH	843	0	1	1.9	-0.5	841	0	2	0	6.9	0.8
MRS	32	0	9	3.5	-2.0	32	0	16	0	11.1	4.0
NCA	636	0	1	1.8	0.5	635	0	4	2	8.7	0.9
NGA	96	2	3	2.1	0.1	96	0	100	0	10.7	0.7
NWA	9954	1	2	2.1	0.7	9959	0	2	1	8.1	0.8
OAL	52	0	2	1.7	0.3	54	0	0	0	6.6	1.7
PAC	74	4	8	2.3	1.0	79	0	5	0	9.8	-0.3
PAL	1016	0	1	1.6	-0.5	1020	0	3	2	8.7	1.2
PAO	223	2	4	2.0	-0.3	229	0	1	0	7.7	0.5
PNL	82	0	0	2.2	1.4	80	0	5	0	12.8	0.4
QFA	1836	0	2	1.9	0.3	1839	0	2	1	8.3	1.2
RAF	206	0	2	1.8	0.5	200	0	2	0	9.2	2.0
RBA	20	0	5	1.7	-0.1	20	0	5	0	10.8	4.2
RIA	172	5	8	2.5	1.3	178	0	7	0	10.2	2.5
RJA	45	0	0	1.5	0.6	45	0	4	0	6.1	1.4
RKA	21	0	5	1.1	-0.3	21	0	5	0	7.7	0.4
RON	44	2	2	1.4	0.3	44	0	2	2	7.1	0.7
ROT	37	3	8	1.8	-1.2	37	0	5	0	7.9	1.7
ROY	30	0	0	2.3	1.1	33	0	3	0	7.5	1.9
RRR	195	1	20	2.6	-0.5	199	0	23	1	8.4	1.7
SAA	205	1	2	1.9	-0.6	207	0	1	0	8.6	1.8
SAB	65	0	0	1.5	0.7	65	0	2	0	6.1	1.2
SAS	1534	0	1	1.9	-0.1	1525	0	2	1	7.3	0.6
SIA	1066	1	2	1.9	-0.5	1069	0	2	0	9.6	1.8
SJM	40	0	5	1.6	0.5	41	0	7	0	8.5	2.3
SOL	51	0	0	1.4	0.7	51	2	2	0	7.0	1.1
SPP	300	1	11	1.5	-0.1	295	1	13	0	8.8	1.5
SVA	130	0	5	1.6	0.2	134	0	7	1	7.7	0.0
SWR	197	1	4	2.1	-0.4	197	0	6	0	8.0	0.7
TAP	663	1	5	1.8	-0.1	661	0	5	0	8.1	1.8
TEJ	42	2	12	1.9	-0.4	43	0	14	0	7.4	0.3
THA	282	0	1	2.0	-0.5	285	0	2	0	9.1	0.6
TOW	140	0	2	1.8	0.3	143	0	3	1	8.2	0.7

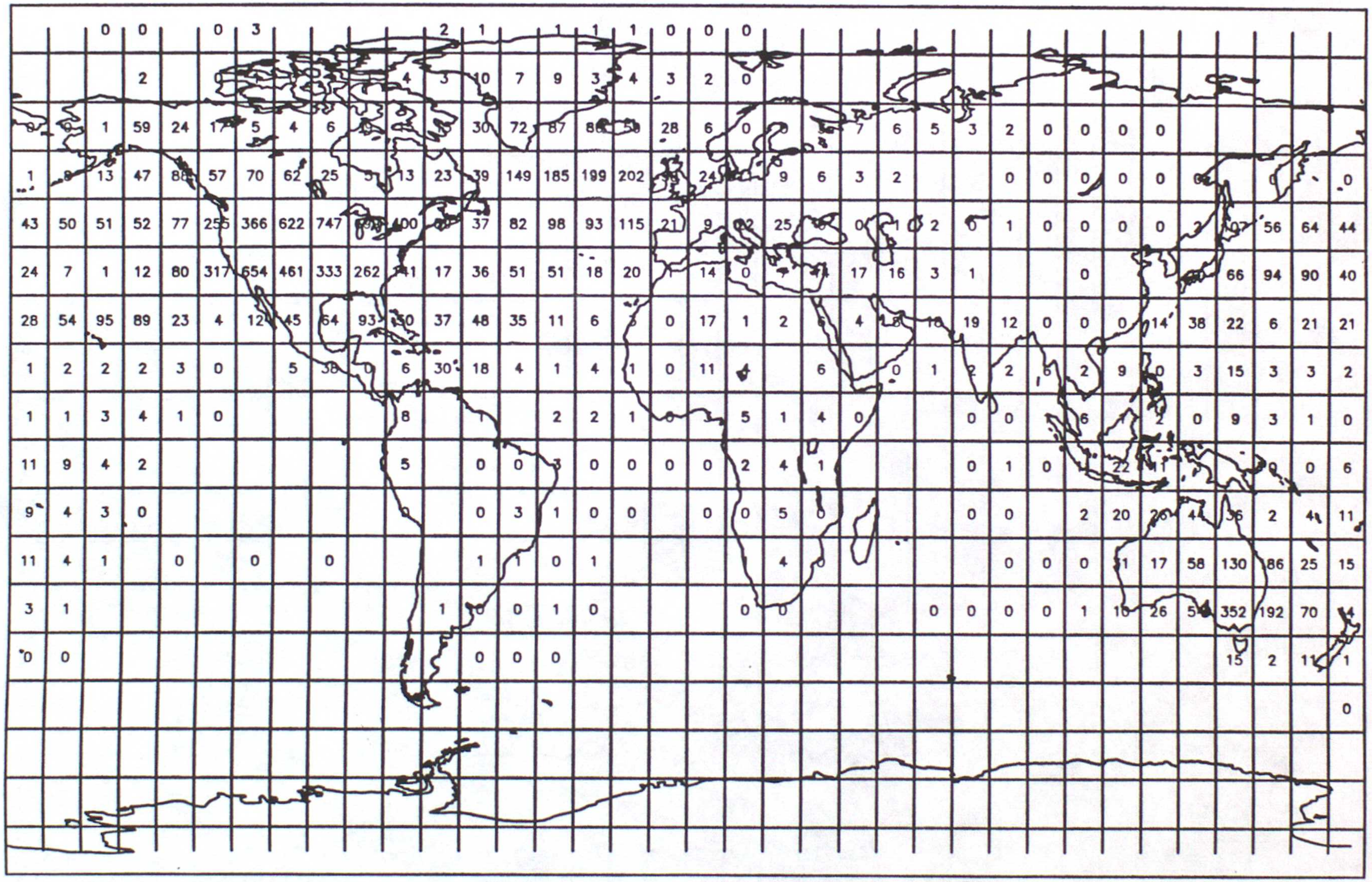
		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TSC	161	0	4	1.9	0.4	161	0	3	0	8.0	1.9
TWA	1670	1	2	1.9	0.0	1669	0	2	0	7.6	1.1
UAL	90132	1	3	1.4	0.2	90188	0	2	0	6.9	0.9
ULE	182	0	1	1.3	0.1	182	0	2	0	6.6	0.5
UPS	876	1	9	1.7	-0.3	886	0	10	0	7.6	1.2
USA	241	1	3	1.4	-0.3	240	0	3	0	7.0	1.1
VIA	586	1	3	1.6	0.8	587	0	4	1	7.3	1.1
VIR	238	0	2	1.7	-0.3	238	0	3	0	8.7	1.7
VRB	25	0	0	2.1	-0.3	25	0	4	4	6.1	0.7
VRG	44	2	5	2.1	1.3	44	0	5	0	10.0	1.6
VSP	85	0	1	1.7	0.4	85	1	6	0	12.9	2.0
WOA	48	0	2	1.8	0.6	49	0	4	0	7.3	-0.1
AN	23103	0	2	1.6	0.2	22906	0	1	0	7.0	1.0
BA	16896	0	22	1.5	0.4	16882	0	21	0	6.5	1.0
DL	926	0	100	3.3	0.9	926	7	100	0	34.6	1.8
FJ	20	0	0	1.2	0.3	20	0	0	0	11.6	-2.1
KL	12311	0	27	1.9	1.3	12299	0	10	0	6.2	1.2
LH	2586	0	3	1.8	0.1	2572	0	4	1	6.8	1.1
NW	52796	0	2	1.5	0.2	52795	0	1	0	6.4	0.9
QF	7189	0	2	1.3	0.3	7178	0	2	0	6.3	0.7
M	261	2	99	3.2	0.9	257	0	98	0	10.6	1.7
N	415	1	4	2.4	0.3	428	0	4	0	8.8	0.9

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA

JUNE 1995

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3


0 0 0 3 2 1 1 1 1 0 0 0
2 4 3 10 7 9 3 4 3 2 0
1 59 24 17 5 4 6 30 72 87 86 28 6 0 7 6 5 3 2 0 0 0 0
1 13 47 88 57 70 62 25 13 23 39 149 185 199 202 24 9 6 3 2 0 0 0 0 0 0
43 50 51 52 77 255 366 622 747 400 37 82 98 93 115 21 9 25 0 1 2 0 1 0 0 0 0 56 64 44
24 7 1 12 80 317 654 461 333 262 41 17 36 51 51 18 20 14 0 17 16 3 1 0 66 94 90 40
28 54 95 89 23 4 12 45 64 93 50 37 48 35 11 6 0 17 1 2 4 19 12 0 0 0 14 38 22 6 21 21
1 2 2 2 3 0 5 38 0 6 30 18 4 1 4 1 0 11 6 0 1 2 2 2 9 0 3 15 3 3 2
1 1 3 4 1 0 8 2 2 1 5 1 4 0 0 0 6 2 0 9 3 1 0
11 9 4 2 5 0 0 3 0 0 0 0 2 4 1 0 1 0 22 11 0 6
9 4 3 0 0 3 1 0 0 0 0 5 0 0 0 2 20 26 44 36 2 41 11
11 4 1 0 0 0 1 1 0 1 4 0 0 0 11 17 58 130 86 25 15
3 1 1 10 0 1 0 0 0 0 0 0 0 1 16 26 54 352 192 70 14
0 0 0 0 0 15 2 11 1
0

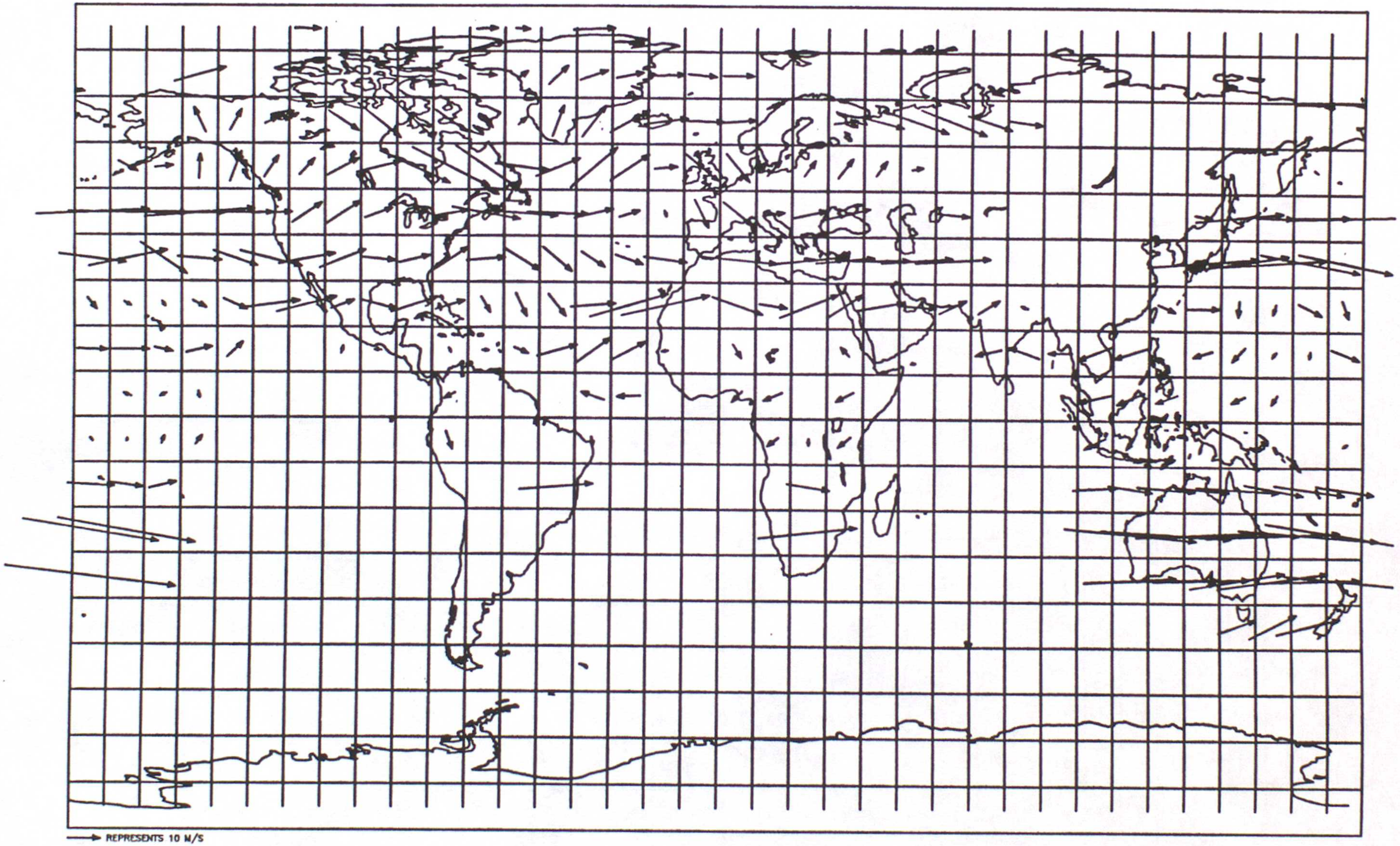
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

JUNE 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



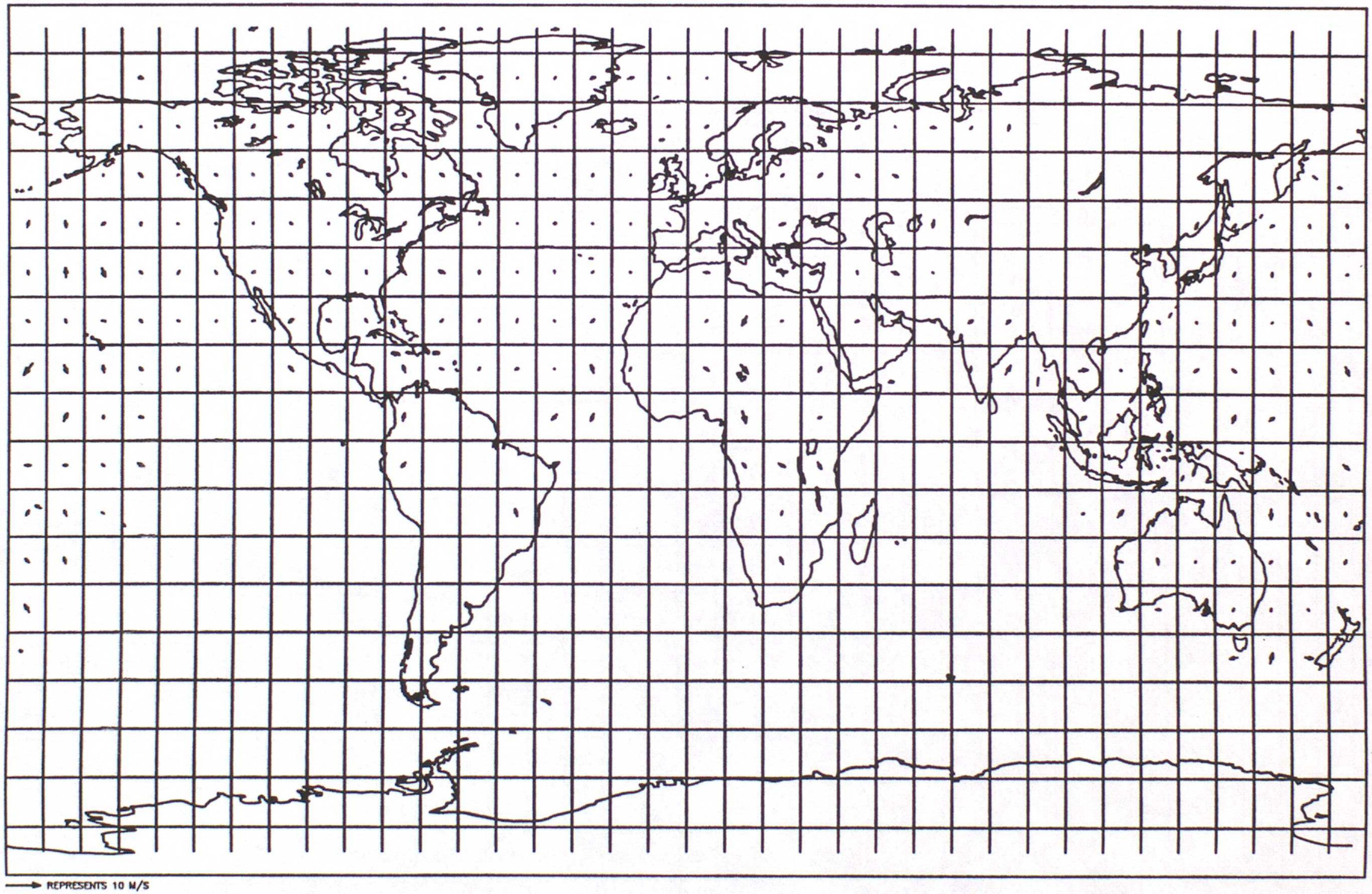
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

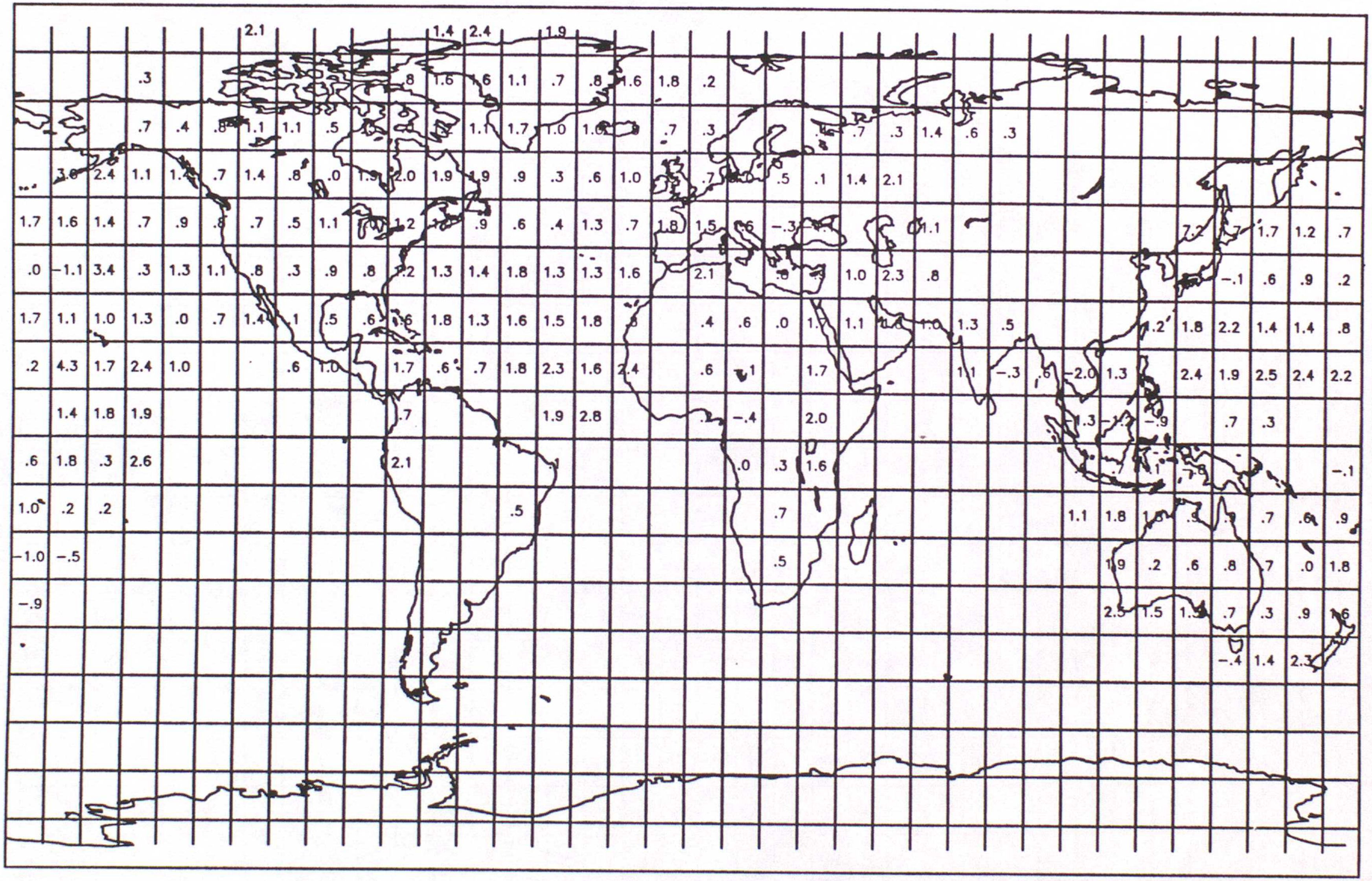
JUNE 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
JUNE 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


2.1 1.4 2.4 1.9
.3 .8 1.6 .6 1.1 .7 .8 1.6 1.8 .2
.7 .4 .8 1.1 1.1 .5 1.1 1.7 1.0 1.0 .7 .3 .7 .3 1.4 .6 .3
3.0 2.4 1.1 1.4 .7 1.4 .8 .0 1.9 2.0 1.9 1.9 .9 .3 .6 1.0 .7 .5 .1 1.4 2.1
1.7 1.6 1.4 .7 .9 .8 .7 .5 1.1 1.2 .9 .6 .4 1.3 .7 1.8 1.5 .6 –.3 1.1 7.2 .7 1.7 1.2 .7
.0 –1.1 3.4 .3 1.3 1.1 .8 .3 .9 .8 .2 1.3 1.4 1.8 1.3 1.3 1.6 2.1 .8 1.0 2.3 .8 –.1 .6 .9 .2
1.7 1.1 1.0 1.3 .0 .7 1.4 .1 .5 .6 .6 1.8 1.3 1.6 1.5 1.8 .4 .6 .0 1.7 1.1 1.6 1.0 1.3 .5 1.2 1.8 2.2 1.4 1.4 .8
.2 4.3 1.7 2.4 1.0 .6 1.0 1.7 .6 .7 1.8 2.3 1.6 2.4 .6 .1 1.7 1.1 –.3 .6 –2.0 1.3 2.4 1.9 2.5 2.4 2.2
1.4 1.8 1.9 .7 1.9 2.8 –.4 2.0 –1.3 –1.3 –.9 .7 .3
.6 1.8 .3 2.6 2.1 .0 .3 1.6 –.1
1.0 .2 .2 .5 .7 1.1 1.8 1.8 .9 .7 .6 .9
–1.0 –.5 .5 1.9 .2 .6 .8 .7 .0 1.8
–.9 2.5 1.5 1.3 .7 .3 .9 1.6
–.4 1.4 2.3

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
JUNE 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

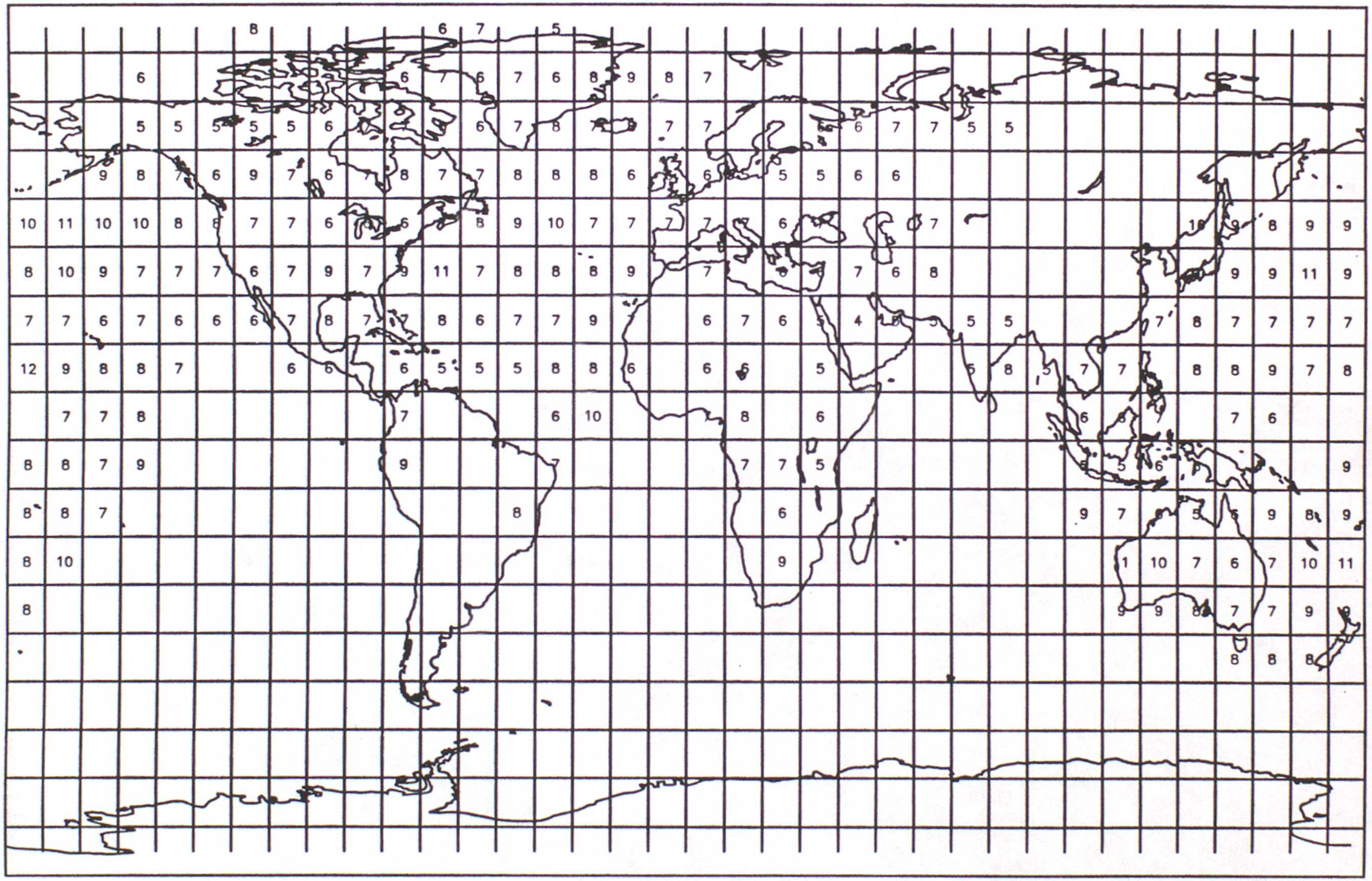

8 6 7 5
6 6 7 6 7 6 8 9 8 7
5 5 5 5 5 6 6 7 8 7 7 7 6 6 7 7 5 5
7 9 8 7 6 9 7 6 7 8 7 7 8 8 8 6 6 5 5 6 6
10 11 10 10 8 8 7 7 6 6 8 9 10 7 7 7 7 6 7 10 9 8 9 9
8 10 9 7 7 7 6 7 9 7 9 11 7 8 8 8 9 7 7 6 8 9 9 11 9
7 7 6 7 6 6 6 7 8 7 7 8 6 7 7 9 6 7 6 5 4 5 5 5 5 7 8 7 7 7 7
12 9 8 8 7 6 6 6 5 5 5 8 8 6 6 6 5 5 8 5 7 7 8 8 9 7 8
7 7 8 7 6 10 8 6 6 6 7 7 6
8 8 7 9 9 7 7 7 5 6 5 6 9
8 8 7 8 6 9 7 5 5 9 8 9
8 10 9 1 10 7 6 7 10 11
8 9 9 8 7 7 9 9
8 8 8

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :≥ 3 levels with ≥ 10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
25399	00	Z	300	66/-170	19	3	62.8	62.8	88.9	8
25399	12	Z	300	66/-170	21	0	52.7	68.3	86.3	4
26258	00	Z	200	58/ 28	25	2	53.4	109.4	121.7	9
41594	00	Z	500	32/ 73	22	0	43.5	-53.0	68.6	7
42027	00	Z	200	34/ 75	17	0	107.2	-16.6	108.5	6
42027	12	Z	100	34/ 75	9	4	109.9	125.4	166.7	4
42182	12	Z	30	29/ 77	14	0	98.5	193.1	216.7	5
42314	00	Z	200	27/ 95	16	0	52.1	-87.9	102.2	6
42314	12	Z	100	27/ 95	15	0	68.2	-114.0	132.8	4
42339	12	Z	250	26/ 73	17	0	92.6	-19.0	94.6	6
42361	00	Z	150	26/ 78	16	0	112.4	-18.6	114.0	9
42361	12	Z	70	26/ 78	13	1	133.5	-79.8	155.6	8
42369	00	Z	200	27/ 81	19	1	88.7	-38.4	96.6	7
42369	12	Z	150	27/ 81	13	1	130.2	36.6	135.2	7
42379	00	Z	30	27/ 83	13	0	76.1	283.5	293.6	10
42379	12	Z	30	27/ 83	13	2	107.9	169.4	200.9	5
42397	00	Z	250	27/ 88	9	1	68.5	-77.0	103.1	4
42397	12	Z	200	27/ 88	9	1	91.9	-82.3	123.4	6
42410	00	Z	30	26/ 92	11	1	122.8	170.8	210.4	6
42492	00	Z	50	26/ 85	11	0	137.7	109.6	176.0	4
42647	12	Z	30	23/ 73	16	1	108.4	273.9	294.6	6
42667	12	Z	250	23/ 77	13	2	89.6	23.4	92.6	5
42701	00	Z	70	23/ 85	9	2	146.8	27.3	149.3	4
42867	12	Z	30	21/ 79	12	0	125.5	200.0	236.1	5
43128	12	Z	30	17/ 78	12	0	81.7	234.5	248.3	6
43150	00	Z	250	18/ 83	24	1	79.9	-53.8	96.3	6
43150	12	Z	200	18/ 83	23	1	70.8	-41.8	82.3	4
43279	00	Z	200	13/ 80	27	0	63.9	-51.8	82.3	4
43346	12	Z	30	11/ 80	16	1	132.4	185.1	227.5	5
43369	00	Z	100	8/ 73	19	2	118.0	-80.5	142.9	6
43369	12	Z	200	8/ 73	17	1	86.5	-10.8	87.2	6
47058	00	Z	100	39/ 126	10	0	117.5	94.0	150.5	4
52267	12	Z	70	42/ 101	28	1	29.0	149.7	152.5	6
52836	12	Z	100	36/ 98	24	0	48.3	115.7	125.4	5
53513	12	Z	100	41/ 107	27	0	41.2	98.7	106.9	5
53845	12	Z	100	37/ 109	26	1	43.7	98.8	108.1	5
54135	00	Z	200	44/ 122	29	0	43.1	68.9	81.3	6
54135	12	Z	70	44/ 122	23	1	108.6	79.5	134.6	4
54342	00	Z	200	42/ 123	28	0	26.5	77.5	81.9	5
54342	12	Z	150	42/ 123	27	0	26.5	95.3	98.9	5
54497	00	Z	70	40/ 124	27	0	56.1	124.0	136.1	7
54497	12	Z	70	40/ 124	26	0	52.9	136.5	146.4	4
55591	12	Z	70	30/ 91	28	0	64.3	129.4	144.5	4
56080	12	Z	100	35/ 103	23	0	36.5	119.6	125.1	6
56146	12	Z	100	32/ 100	21	0	51.2	119.8	130.3	5
56691	12	Z	30	27/ 104	23	0	43.7	208.0	212.5	5
56739	12	Z	100	25/ 98	27	0	33.8	119.8	124.5	4
56985	12	Z	100	23/ 103	28	0	46.4	119.0	127.7	4
57036	12	Z	100	34/ 109	27	0	44.9	101.5	111.0	4
57083	00	Z	150	35/ 114	24	0	42.8	96.0	105.2	4
57127	12	Z	100	33/ 107	27	0	39.3	125.2	131.2	6
57178	00	Z	150	33/ 113	29	0	28.2	89.7	94.0	4
57516	00	Z	100	30/ 106	25	0	50.4	116.8	127.2	4
57679	00	Z	100	28/ 113	23	0	46.0	135.2	142.8	7
57679	12	Z	100	28/ 113	19	0	38.8	126.5	132.3	4
57749	00	Z	100	28/ 110	28	0	36.7	123.9	129.2	4
57749	12	Z	100	28/ 110	25	0	44.7	125.5	133.2	5
57957	00	Z	100	25/ 110	27	0	43.7	164.9	170.6	7
57957	12	Z	100	25/ 110	26	0	49.7	141.8	150.3	6
58027	00	Z	150	34/ 117	29	0	33.0	90.9	96.7	4

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
58027	12	Z	100	34/ 117	27	0	34.8	122.8	127.6	6
58203	00	Z	150	33/ 116	28	0	30.5	91.7	96.7	4
58238	00	Z	150	32/ 119	27	0	34.1	94.5	100.5	4
58633	12	Z	100	29/ 119	24	0	32.1	107.5	112.2	4
58665	00	Z	100	29/ 121	26	0	62.9	123.3	138.4	6
58847	00	Z	100	26/ 119	28	0	40.5	125.2	131.6	4
60490	12	Z	250	36/ -1	14	7	37.0	-174.4	178.2	5
62306	00	Z	70	31/ 27	16	0	84.6	154.7	176.3	5
62306	12	Z	50	31/ 27	7	9	22.2	367.4	368.1	8
62378	12	Z	50	30/ 31	10	3	64.3	308.9	315.5	5
68240	12	Z	100	-24/ 26	10	0	136.2	17.5	137.3	9
71203	00	Z	1000	50/ -12	11	18	35.3	-56.2	66.4	9
71203	12	Z	1000	50/ -12	18	12	40.5	-51.8	65.8	9
89050	00	Z	30	-62/ -59	10	4	75.1	317.6	326.3	9
96163	00	Z	200	-1/ 100	20	0	115.7	-50.3	126.1	7
96237	00	Z	100	-2/ 106	17	0	112.6	85.5	141.4	5
97724	00	Z	150	-4/ 128	25	0	114.7	35.1	119.9	4

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – JUNE 1995 FIGURE 8
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1397

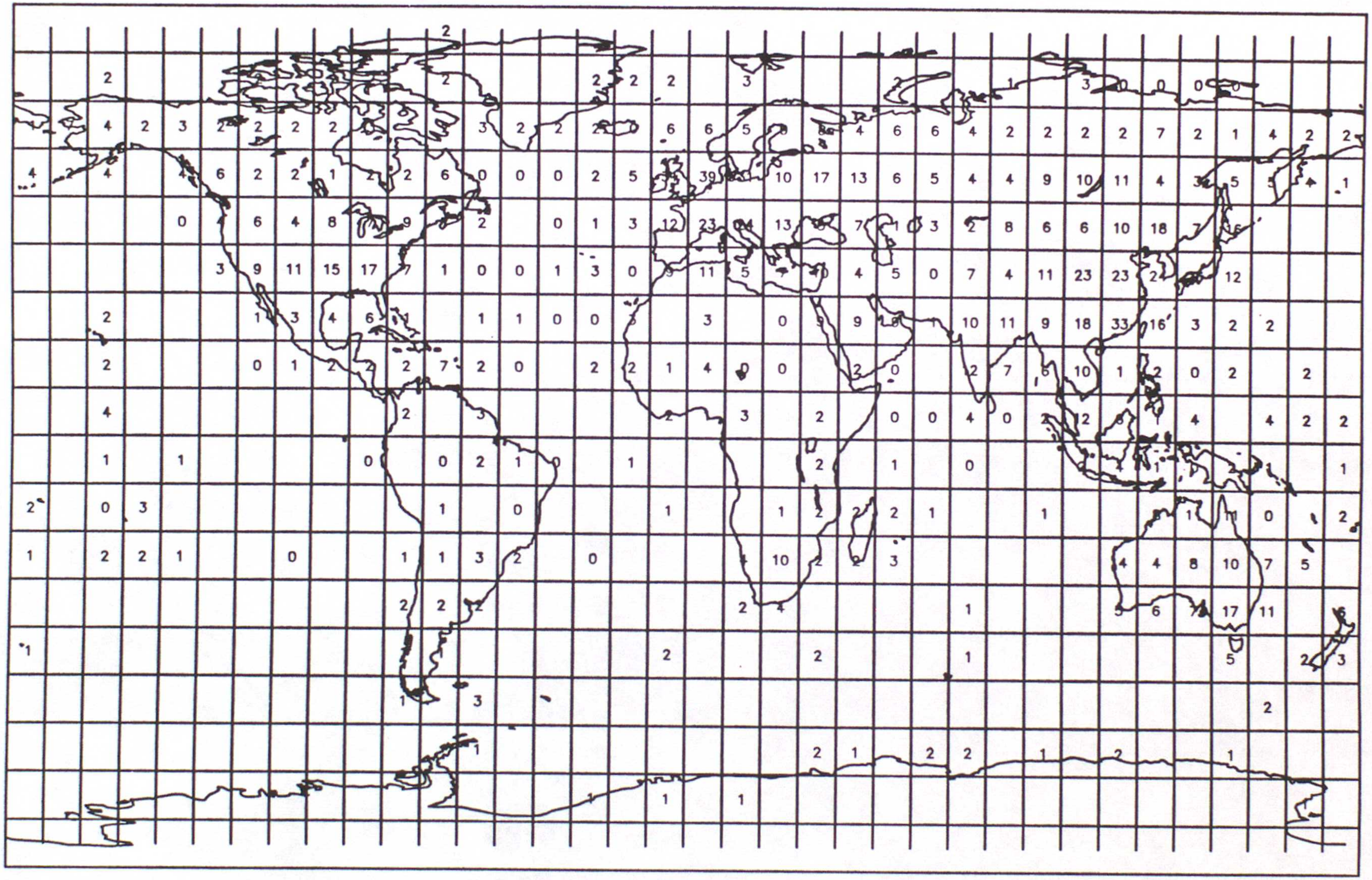

2
2 2 2 2 2 3 2 1 3 0 0 0 0
4 2 3 2 2 2 2 3 2 2 2 6 6 5 8 8 4 6 6 4 2 2 2 2 7 2 1 4 2 2
4 2 4 4 6 2 2 1 2 2 6 0 0 0 2 5 3 39 3 10 17 13 6 5 4 4 9 10 11 4 3 5 5 4 1
0 4 6 4 8 9 2 0 1 3 12 23 4 13 6 7 1 3 2 8 6 6 10 18 7 6
3 9 11 15 17 7 1 0 0 1 3 0 9 11 5 7 10 4 5 0 7 4 11 23 23 24 12
2 1 3 4 6 1 1 1 0 0 3 3 0 9 9 8 1 10 11 9 18 33 16 3 2 2
2 0 1 2 2 2 7 2 0 2 2 1 4 0 0 2 0 2 7 6 10 1 2 0 2 2
4 2 3 2 3 2 0 0 4 0 2 12 8 1 4 4 2 2
1 1 0 0 2 1 0 1 2 1 0 4 1 2 1 1
2 0 3 1 0 1 1 2 2 2 1 1 8 1 11 0 2
1 2 2 1 0 1 1 3 2 0 4 10 2 2 3 4 4 8 10 7 5
2 2 2 2 4 1 5 6 7 17 11 6
1 2 2 1 5 2 3
1 3 2
1 2 1 2 2 1 2 1
1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	:≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
41530	00	V	100	34/ 72	12	0	0	12.5	4.5	16.4	1
42667	12	V	250	23/ 77	15	0	13	9.2	3.7	17.3	1
43150	00	V	300	18/ 83	10	0	10	7.1	1.5	15.8	1
60571	00	V	200	32/ -2	12	0	25	1.5	-11.2	15.3	1
62378	12	V	200	30/ 31	13	0	7	-5.7	-6.0	15.8	1
68240	12	V	150	-24/ 26	12	0	41	-4.2	0.5	23.7	1
71203	12	V	300	50/ -12	29	0	75	3.8	10.0	15.9	2
83612	00	V	300	-20/ -55	19	0	10	9.2	-2.0	17.2	2
83612	12	V	250	-20/ -55	17	0	11	7.1	-3.4	15.8	2
89542	00	V	300	-68/ 46	23	0	34	12.2	5.6	21.5	6

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – JUNE 1995 FIGURE 9
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1261

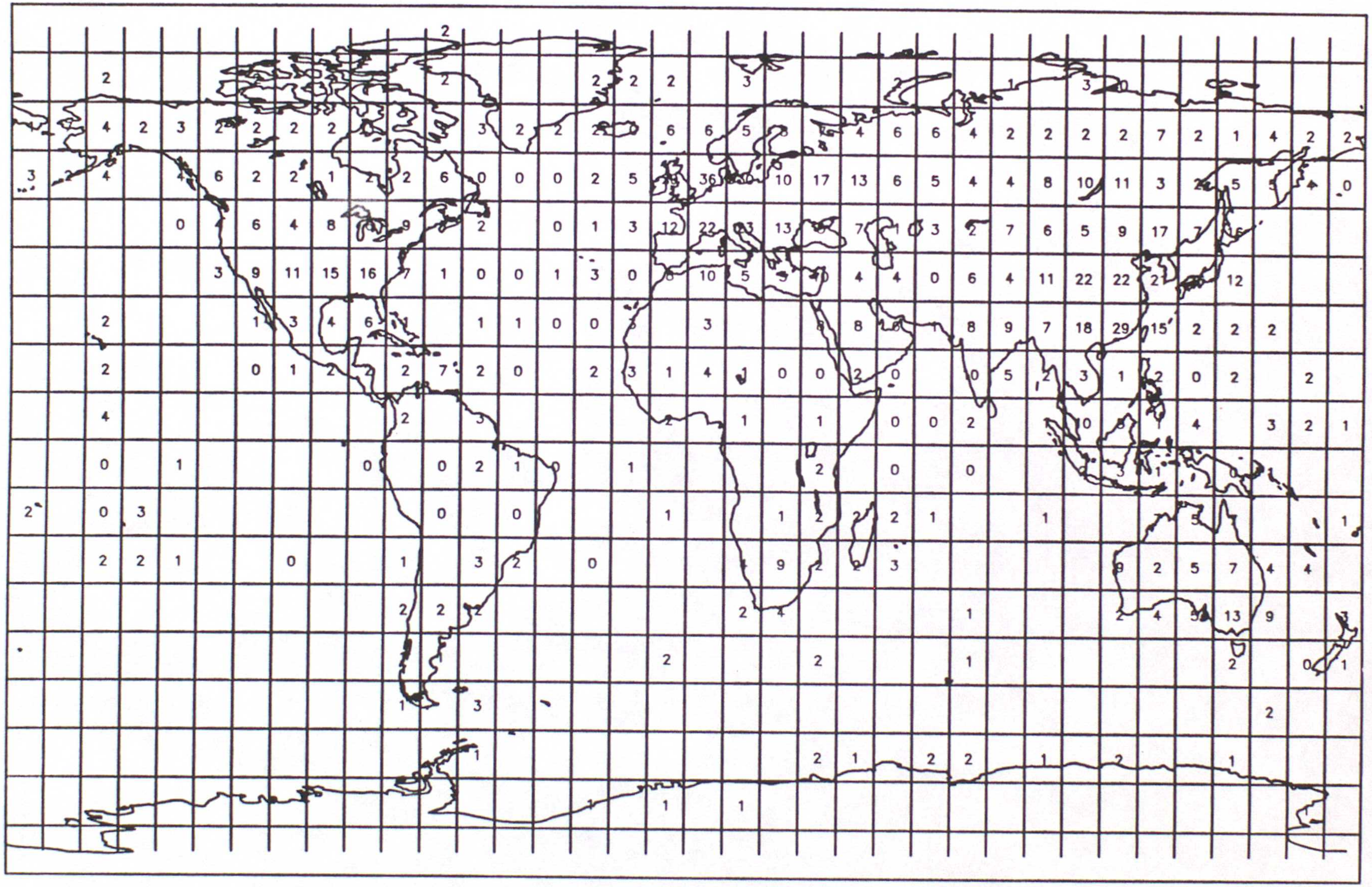

2
2 2 2 2 2 3 2 1 3
4 2 3 2 2 2 2 3 2 2 2 6 6 5 4 6 6 4 2 2 2 2 7 2 1 4 2 2
3 4 4 6 2 2 1 2 2 6 0 0 0 2 5 36 10 17 13 6 5 4 4 8 10 11 3 5 5 4 0
0 6 4 8 9 2 0 1 3 12 22 13 7 1 3 2 7 6 5 9 17 7 6
3 9 11 15 16 7 1 0 0 1 3 0 10 5 4 4 0 6 4 11 22 22 12
2 1 3 4 6 1 1 1 0 0 3 8 8 9 7 18 29 15 2 2 2
2 0 1 2 2 7 2 0 2 3 1 4 0 0 2 0 0 5 2 3 1 2 0 2 2
4 2 3 2 1 1 0 0 2 0 4 3 2 1
0 1 0 0 2 1 0 1 2 0 0 0 1
2 0 3 0 0 1 1 2 2 1 1 5 1 1
2 2 1 0 1 3 2 0 9 2 2 3 9 2 5 7 4 4
2 2 2 2 4 1 2 4 5 13 9 3
2 2 1 2 0 1
1 3 2
1 2 1 2 2 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	12	DD	38/ 40	25	-10.0	5.3	9.9
24641	00	DD	64/ 122	23	14.2	5.5	12.6
24641	12	DD	64/ 122	24	13.5	4.8	14.2
40265	00	DD	32/ 36	27	-50.9	2.5	19.1
47158	00	DD	35/ 127	28	11.4	7.7	17.4
48855	00	DD	16/ 108	18	-11.0	7.0	18.6
48900	00	DD	10/ 106	14	-12.9	6.7	20.7
53614	00	DD	38/ 106	28	-14.0	7.1	11.2
55591	12	DD	30/ 91	24	-17.0	9.3	23.3
56691	12	DD	27/ 104	21	-14.6	7.9	21.4
56778	12	DD	25/ 103	17	-12.5	4.3	22.7
59316	00	DD	23/ 117	21	11.8	7.3	18.9
60571	00	DD	32/ -2	15	18.7	7.7	16.0
60571	12	DD	32/ -2	17	17.2	5.8	14.1
72248	00	DD	32/ -94	23	-11.2	7.2	14.9
83208	00	DD	-13/ -60	8	17.6	7.5	21.5
96441	12	DD	3/ 113	18	10.2	5.6	22.2

MONITORING OF SATELLITE WINDS

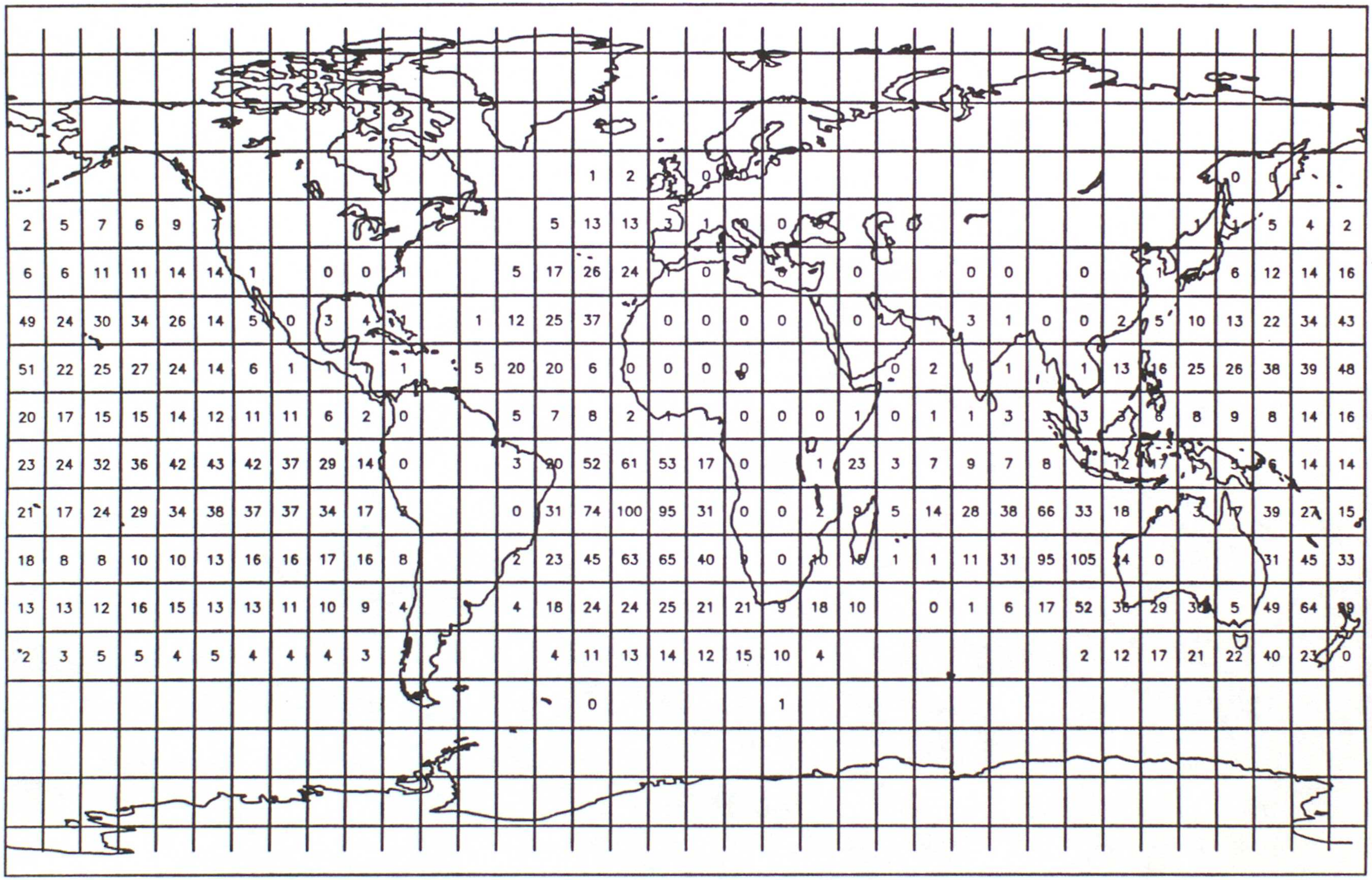
MONITORING CENTRE: BRACKNELL

MONTH:June, 95

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer:701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JUNE 1995


1 2 0 0 0
2 5 7 6 9 7 5 13 13 3 1 0 0 0 1 1 5 4 2
6 6 11 11 14 14 1 0 0 1 5 17 26 24 0 0 0 0 0 0 1 6 12 14 16
49 24 30 34 26 14 5 0 3 4 1 1 12 25 37 0 0 0 0 0 3 1 0 0 2 5 10 13 22 34 43
51 22 25 27 24 14 6 1 1 1 1 5 20 20 6 0 0 0 0 0 2 1 1 1 1 13 16 25 26 38 39 48
20 17 15 15 14 12 11 11 6 2 0 5 7 8 2 1 0 0 0 1 0 1 1 3 3 3 3 6 8 9 8 14 16
23 24 32 36 42 43 42 37 29 14 0 3 20 52 61 53 17 0 1 23 3 7 9 7 8 6 12 17 5 6 14 14
21 17 24 29 34 38 37 37 34 17 3 0 31 74 100 95 31 0 0 2 9 5 14 28 38 66 33 18 6 3 17 39 27 15
18 8 8 10 10 13 16 16 17 16 8 2 23 45 63 65 40 9 0 10 18 1 1 11 31 95 105 34 0 31 45 33
13 13 12 16 15 13 13 11 10 9 4 4 18 24 24 25 21 21 9 18 10 0 1 6 17 52 36 29 38 5 49 64 39
2 3 5 5 4 5 4 4 4 3 4 11 13 14 12 15 10 4 2 12 17 21 22 40 23 0
0 1

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA

FIGURE 11

JUNE 1995

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

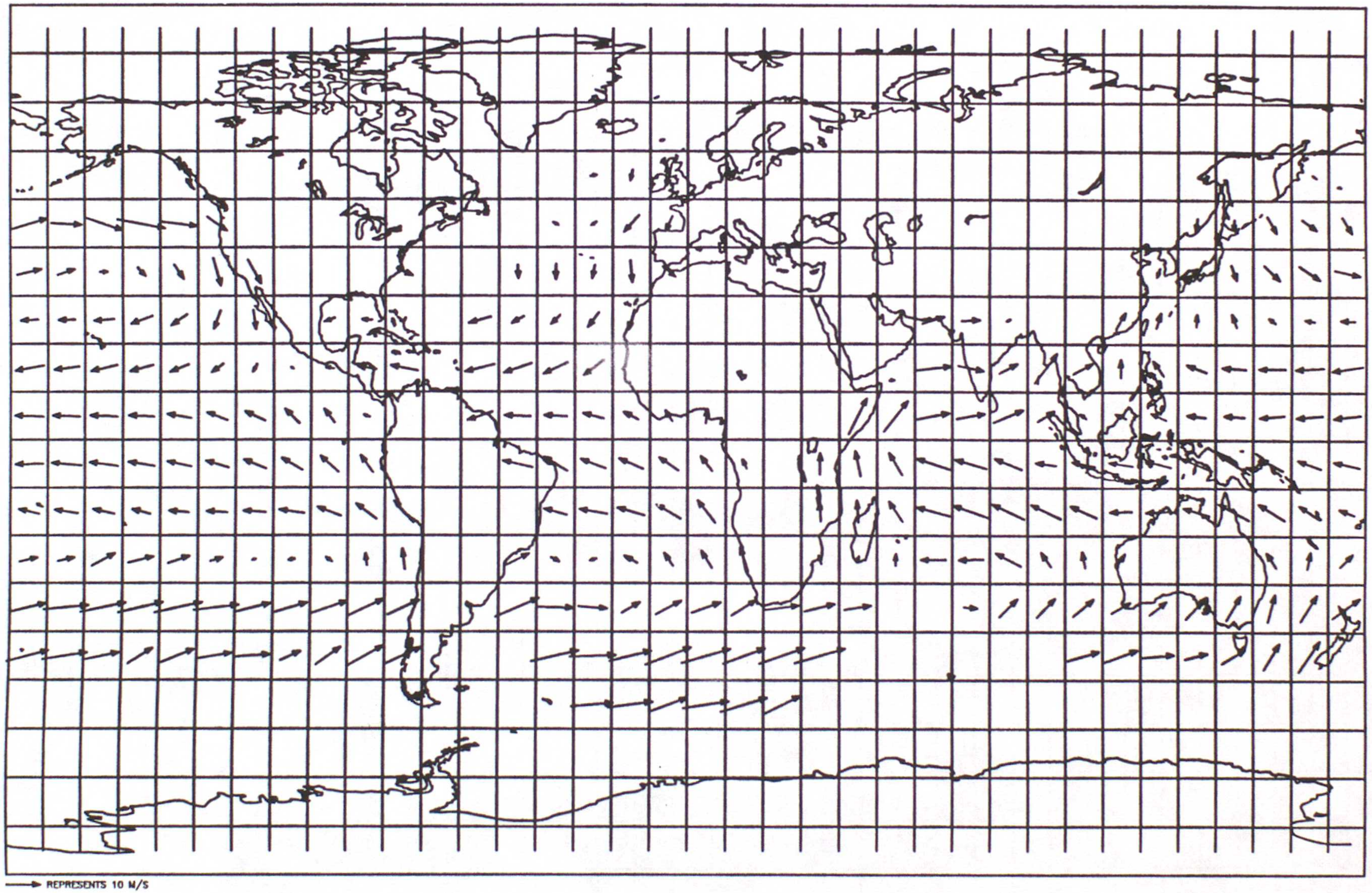
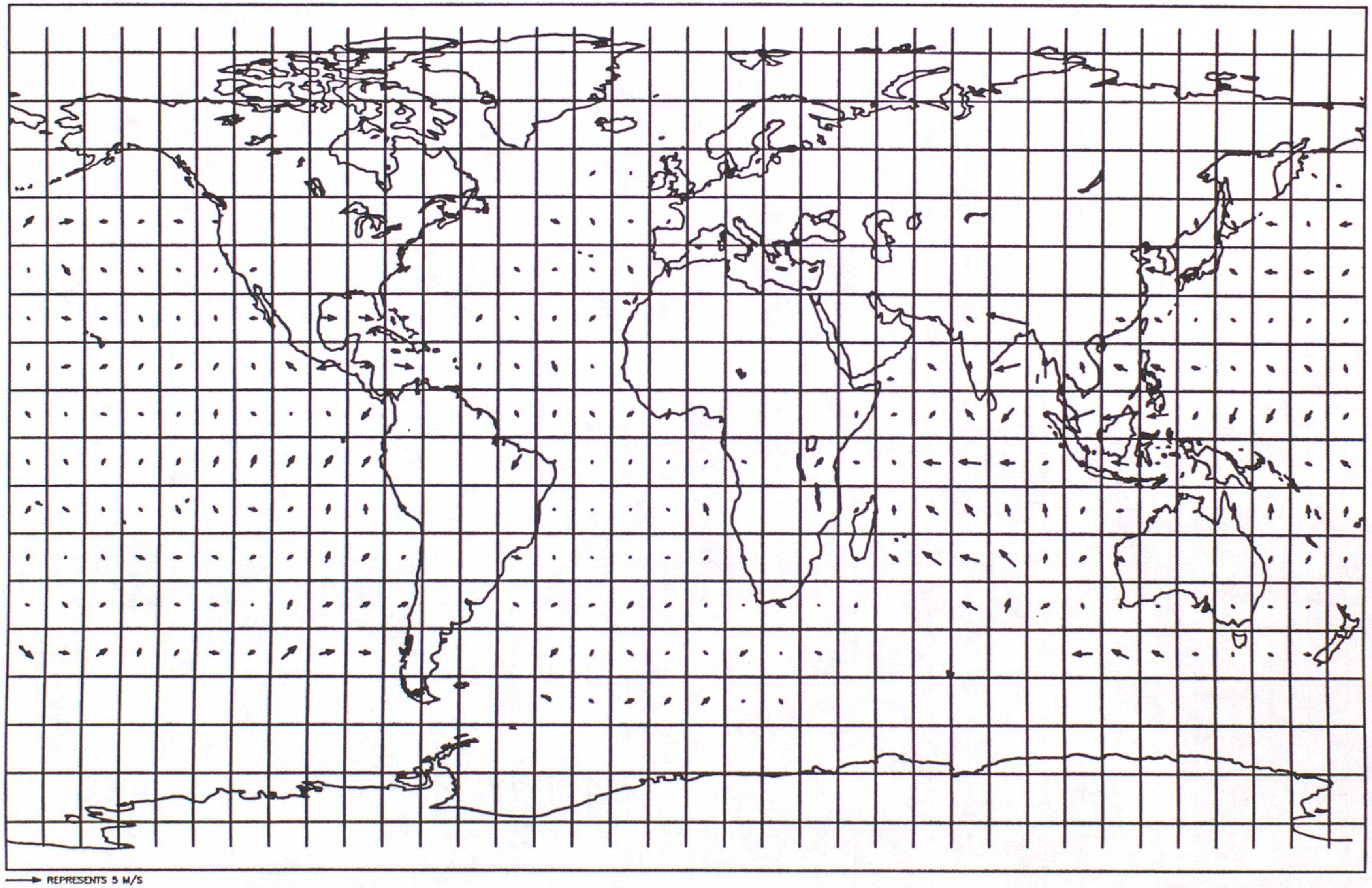
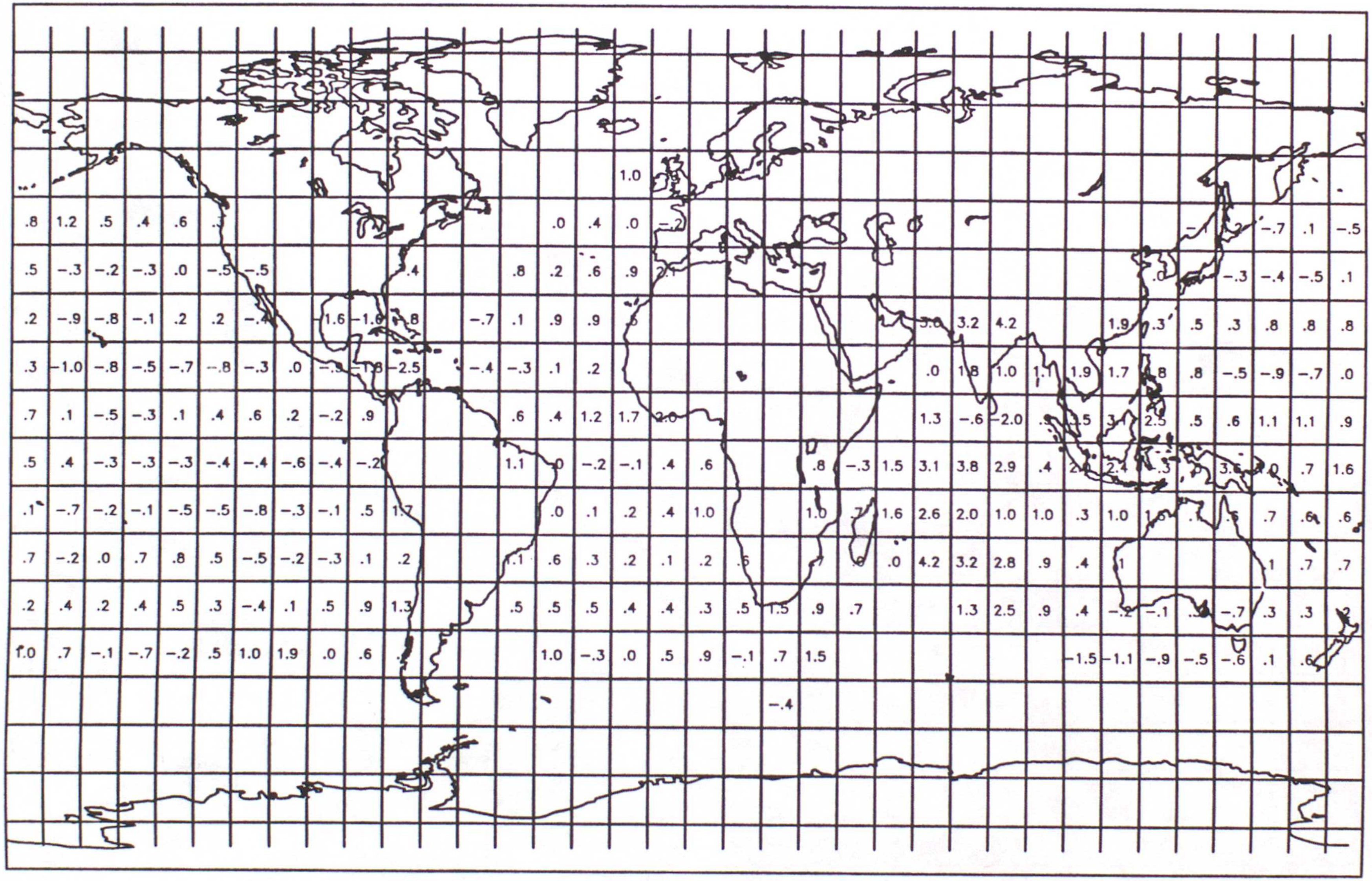

REPRESENTS 10 M/S

FIGURE 12

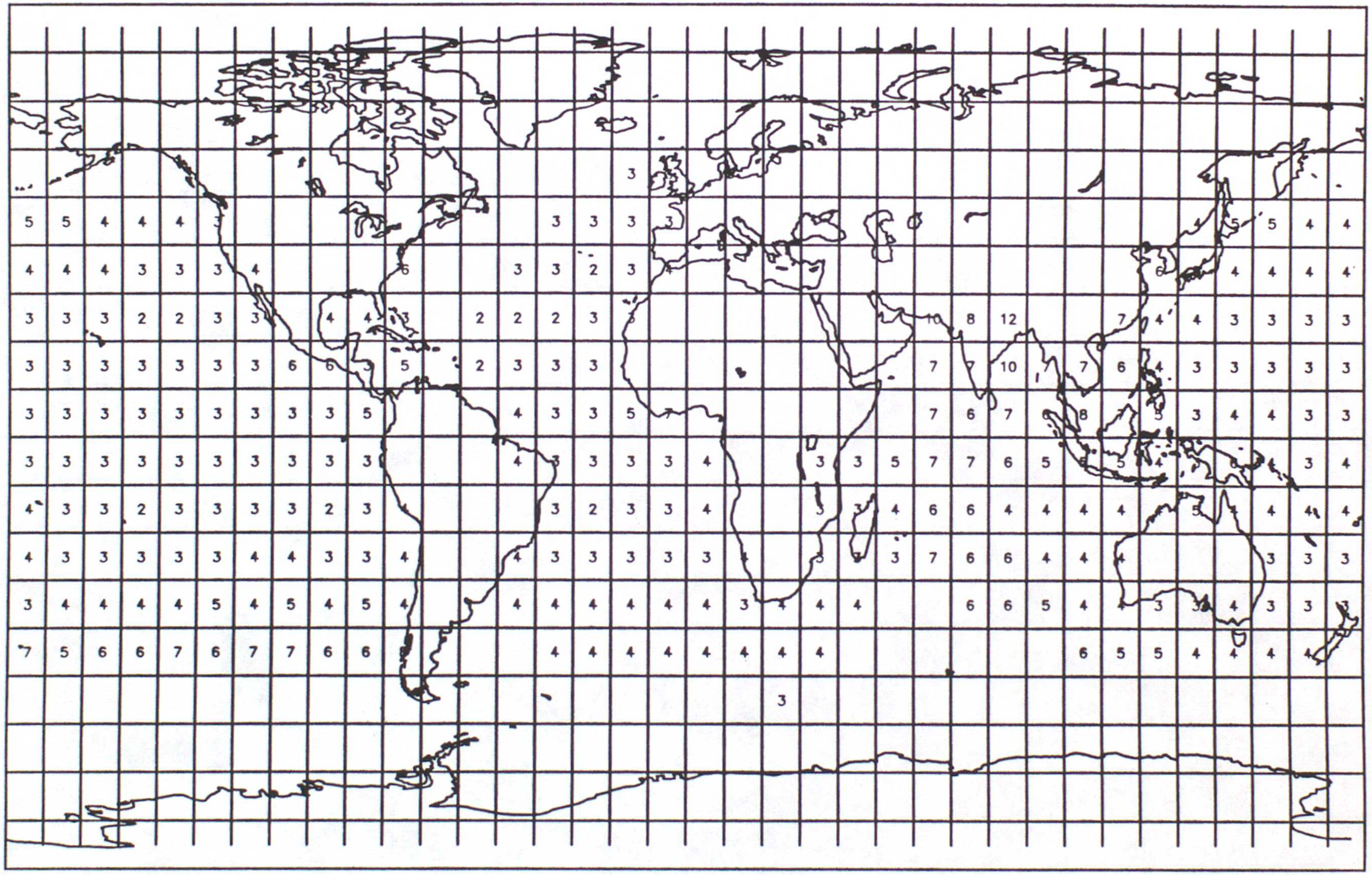
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
JUNE 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

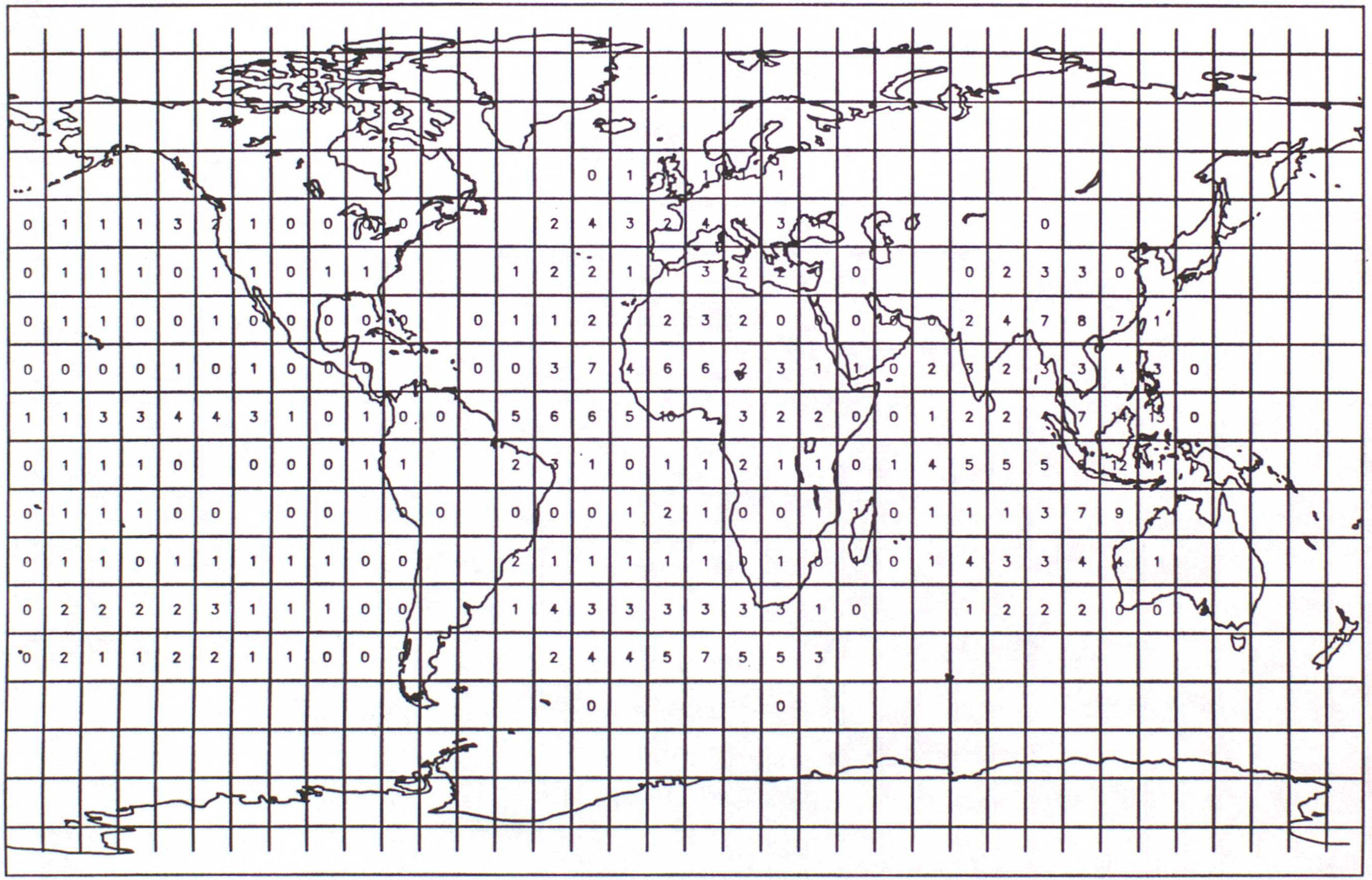
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.0
.8 1.2 .5 .4 .6 .3 .0 .4 .0 –.2 –.1 .2 –.7 .1 –.5
.5 –.3 –.2 –.3 .0 –.5 –.5 .4 .8 .2 .6 .9 2.1 .0 –.3 –.4 –.5 .1
.2 –.9 –.8 –.1 .2 .2 –.4 –1.6 –1.6 .8 –.7 .1 .9 .9 .5 3.0 3.2 4.2 1.9 .3 .5 .3 .8 .8 .8
.3 –1.0 –.8 –.5 –.7 –.8 –.3 .0 –.3 –1.8 –2.5 –.4 –.3 .1 .2 .0 1.8 1.0 1.1 1.9 1.7 .8 .8 –.5 –.9 –.7 .0
.7 .1 –.5 –.3 .1 .4 .6 .2 –.2 .9 .6 .4 1.2 1.7 2.0 1.3 –.6 –2.0 .5 3.1 2.5 .5 .6 1.1 1.1 .9
.5 .4 –.3 –.3 –.3 –.4 –.4 –.6 –.4 –.2 1.1 .0 –.2 –.1 .4 .6 .8 –.3 1.5 3.1 3.8 2.9 .4 2.0 2.4 .3 .5 3.6 .0 .7 1.6
.1 –.7 –.2 –.1 –.5 –.5 –.8 –.3 –.1 .5 1.7 .0 .1 .2 .4 1.0 1.0 .7 1.6 2.6 2.0 1.0 1.0 .3 1.0 1.5 .1 .5 .7 .6 .6
.7 –.2 .0 .7 .8 .5 –.5 –.2 –.3 .1 .2 .1 .6 .3 .2 .1 .2 .5 .7 .0 .0 4.2 3.2 2.8 .9 .4 .1 .1 .7 .7
.2 .4 .2 .4 .5 .3 –.4 .1 .5 .9 1.3 .5 .5 .5 .4 .4 .3 .5 1.5 .9 .7 1.3 2.5 .9 .4 –.2 –.1 .3 –.7 .3 .3 .2
1.0 .7 –.1 –.7 –.2 .5 1.0 1.9 .0 .6 1.0 –.3 .0 .5 .9 –.1 .7 1.5 –1.5 –1.1 –.9 –.5 –.6 .1 .6
–.4

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


3
5 5 4 4 4 3 3 3 3 3 4 5 5 4 4
4 4 4 3 3 3 4 6 3 3 2 3 4 6 4 4 4 4
3 3 3 2 2 3 3 4 4 3 2 2 2 3 3 10 8 12 7 4 4 3 3 3 3
3 3 3 3 3 3 3 6 6 3 5 2 3 3 3 7 7 10 7 7 6 4 3 3 3 3 3
3 3 3 3 3 3 3 3 3 5 4 3 3 5 7 7 6 7 6 8 7 3 3 4 4 3 3
3 3 3 3 3 3 3 3 3 3 4 3 3 3 3 4 3 3 5 7 7 6 5 5 5 4 6 4 3 4
4 3 3 2 3 3 3 3 2 3 4 3 2 3 3 4 3 3 4 6 6 4 4 4 4 5 4 4 4 4
4 3 3 3 3 3 4 4 3 3 4 4 3 3 3 3 3 4 3 3 3 7 6 6 4 4 4 3 3 3
3 4 4 4 4 5 4 5 4 5 4 4 4 4 4 4 4 3 4 4 4 6 6 5 4 4 3 3 4 3 3 3
7 5 6 6 7 6 7 7 6 6 6 4 4 4 4 4 4 4 4 6 5 5 4 4 4 4
3

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JUNE 1995


0 1 1 1
0 1 1 1 3 2 1 0 0 0 0 2 4 3 2 4 4 3 1 0
0 1 1 1 0 1 1 0 1 1 1 2 2 1 1 3 2 2 0 0 0 2 3 3 0
0 1 1 0 0 1 0 0 0 0 0 0 1 1 2 1 2 3 2 0 0 0 0 0 2 4 7 8 7 1
0 0 0 0 1 0 1 0 0 0 0 0 3 7 4 6 6 2 3 1 1 0 2 3 2 3 3 4 3 0
1 1 3 3 4 4 3 1 0 1 0 0 5 6 6 5 10 3 2 2 0 0 1 2 2 7 14 13 0
0 1 1 1 0 0 0 0 1 1 2 3 1 0 1 1 2 1 1 0 1 4 5 5 5 6 12 11 0
0 1 1 1 0 0 0 0 0 0 0 0 0 1 2 1 0 0 1 1 0 1 1 1 3 7 9 2
0 1 1 0 1 1 1 1 1 0 0 2 1 1 1 1 1 0 1 0 1 0 1 4 3 3 4 4 1
0 2 2 2 2 3 1 1 1 0 0 1 4 3 3 3 3 3 3 1 0 1 2 2 2 0 0
0 2 1 1 2 2 1 1 0 0 0 2 4 4 5 7 5 5 3
0 0

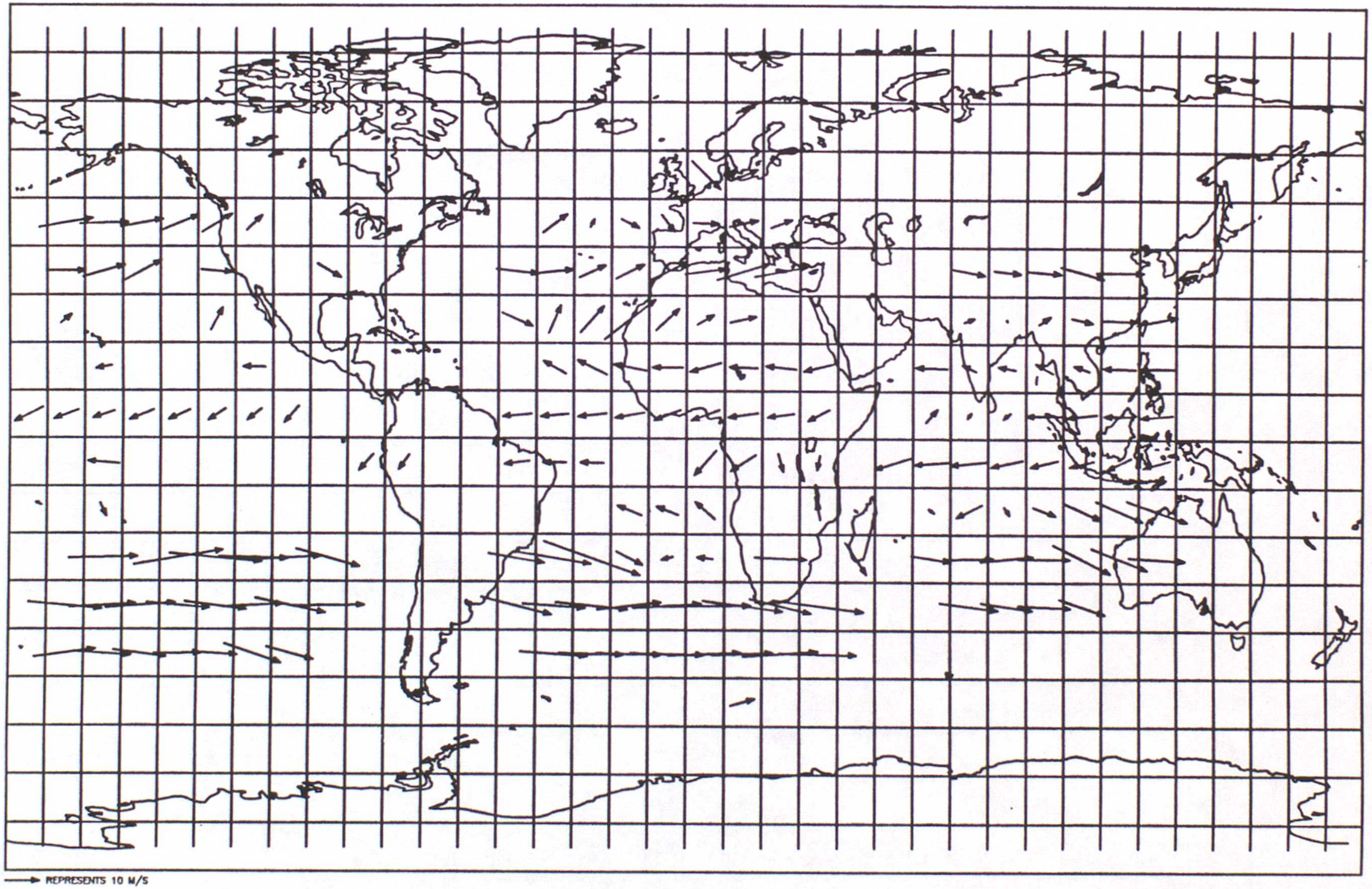
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

FIGURE 16

JUNE 1995

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

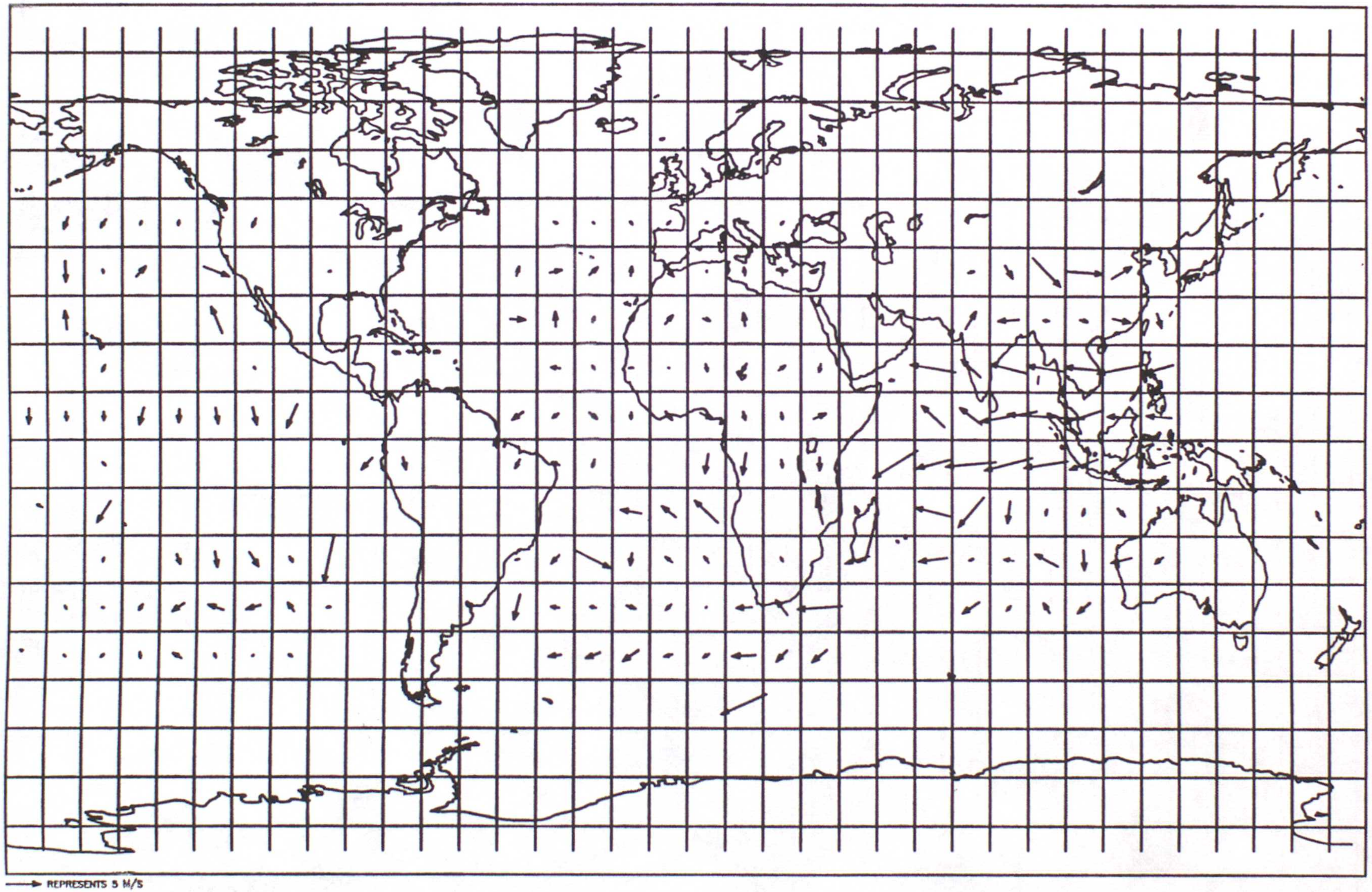
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

FIGURE 17

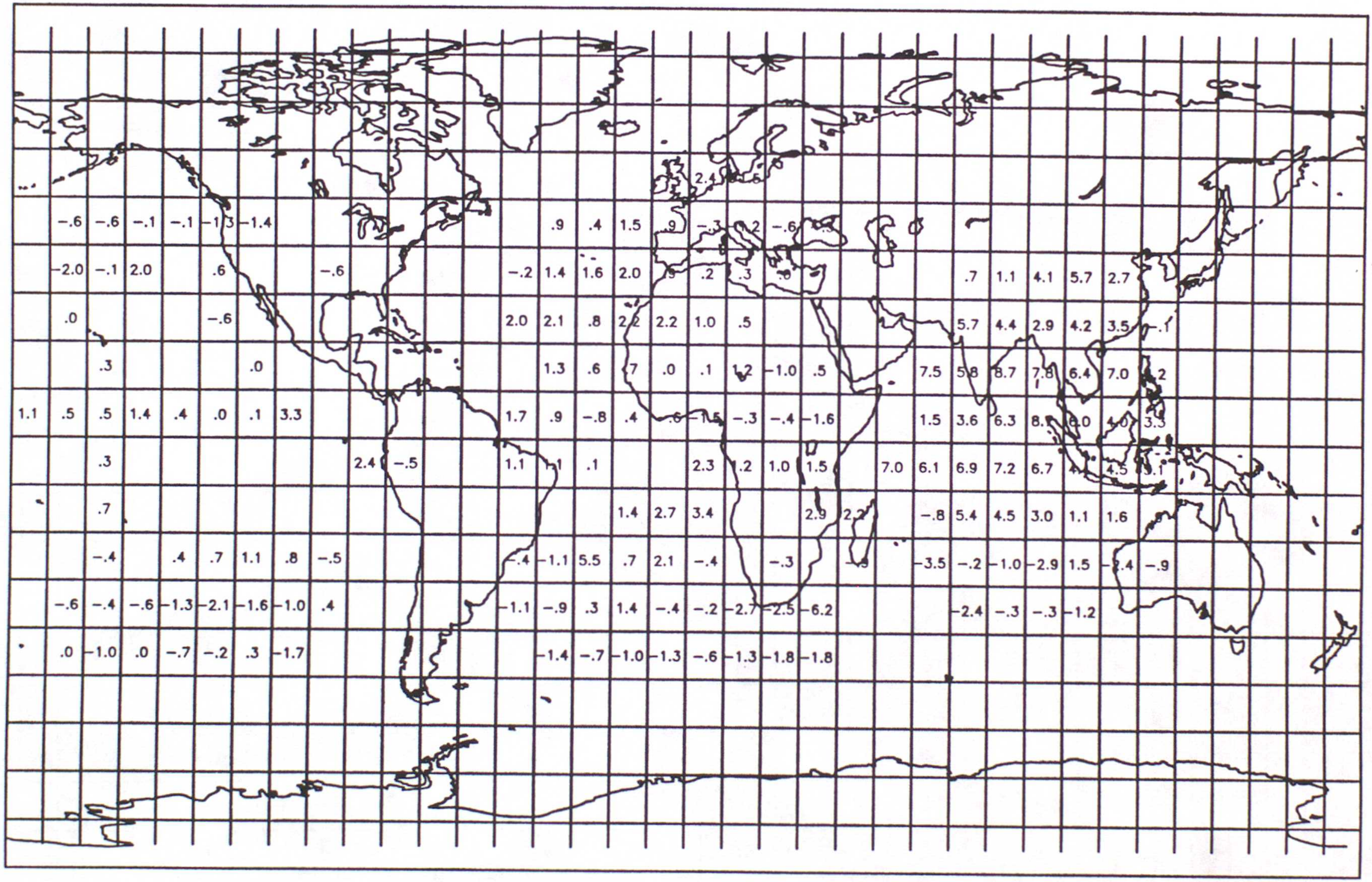
JUNE 1995

ALL OBSERVATIONS

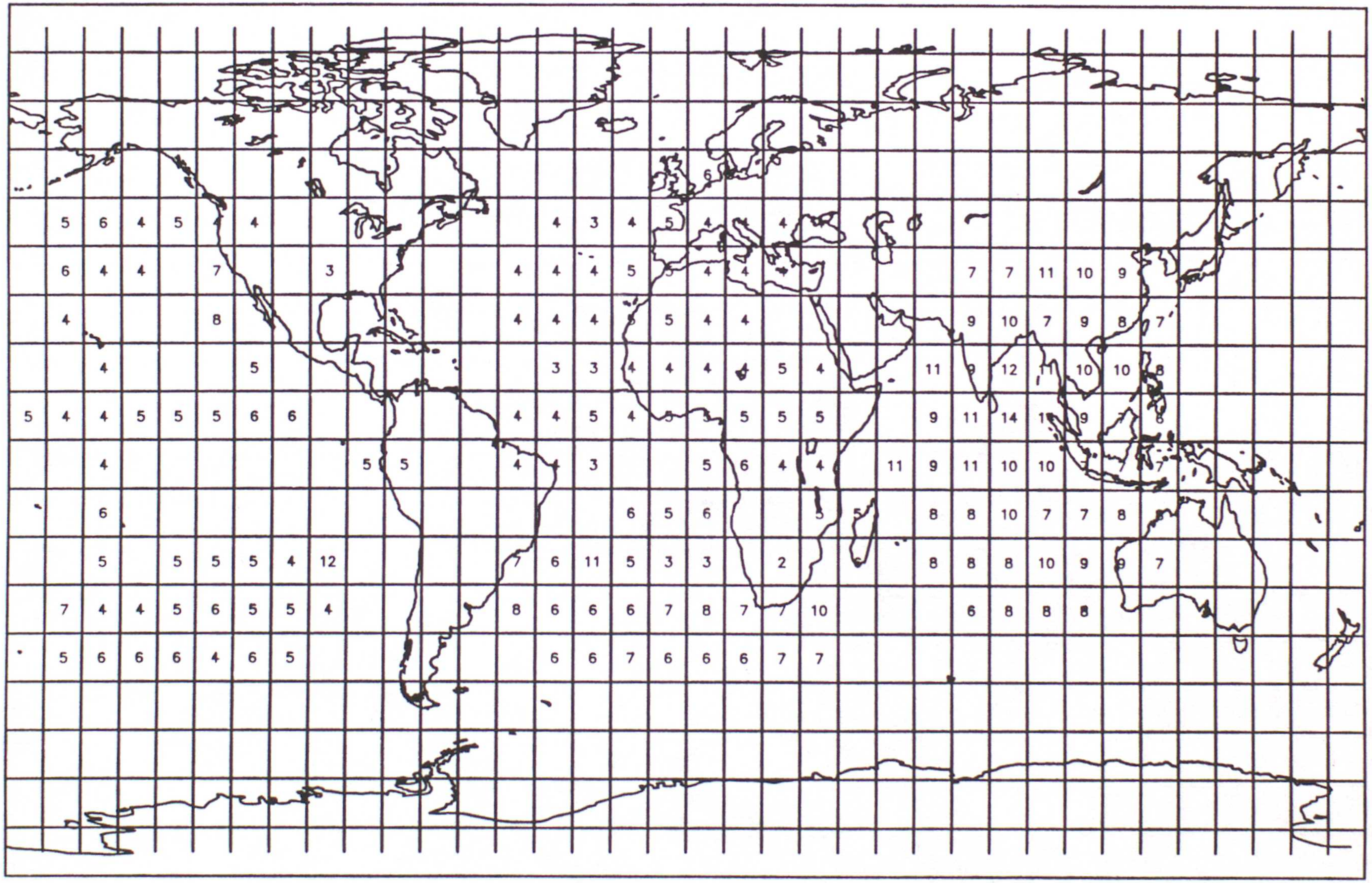
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


→ REPRESENTS 5 M/S

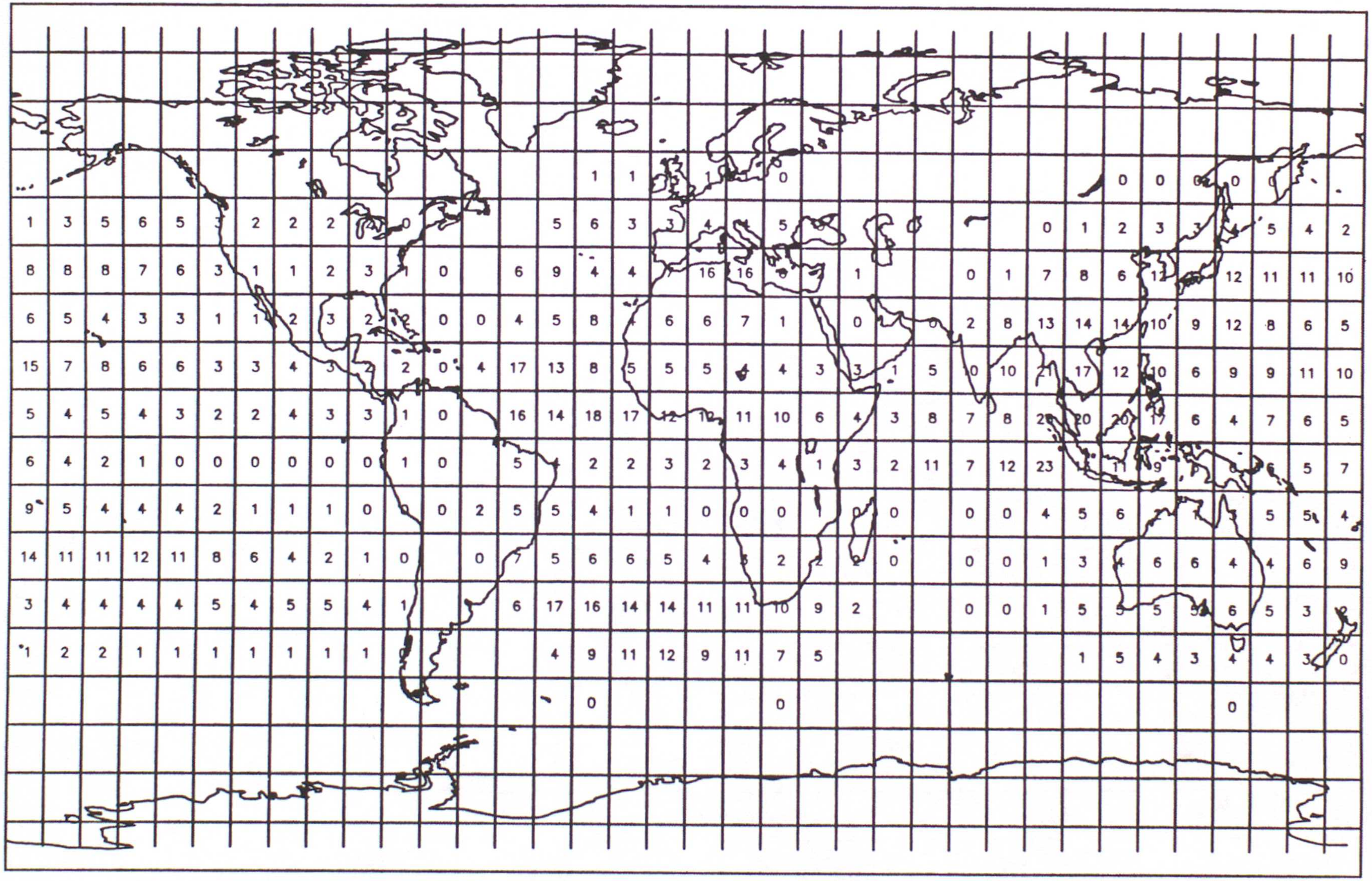
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


2.4 .5
-.6 -.6 -.1 -.1 -1.3 -1.4 .9 .4 1.5 .9 -.3 .2 -.6
-2.0 -.1 2.0 .6 -.6 -.2 1.4 1.6 2.0 .2 .3 .7 1.1 4.1 5.7 2.7
.0 -.6 2.0 2.1 .8 2.2 2.2 1.0 .5 5.7 4.4 2.9 4.2 3.5 -.1
.3 .0 1.3 .6 .7 .0 .1 1.2 -1.0 .5 7.5 5.8 8.7 7.8 6.4 7.0 .2
1.1 .5 .5 1.4 .4 .0 .1 3.3 1.7 .9 -.8 .4 .6 -1.5 -.3 -.4 -1.6 1.5 3.6 6.3 8.1 6.0 4.0 3.3
.3 2.4 -.5 1.1 1.1 .1 2.3 .2 1.0 1.5 7.0 6.1 6.9 7.2 6.7 4.5 3.1
.7 1.4 2.7 3.4 2.9 2.2 -.8 5.4 4.5 3.0 1.1 1.6
-.4 .4 .7 1.1 .8 -.5 -.4 -1.1 5.5 .7 2.1 -.4 -.3 -3.5 -.2 -1.0 -2.9 1.5 -2.4 -.9
-.6 -.4 -.6 -1.3 -2.1 -1.6 -1.0 .4 -1.1 -.9 .3 1.4 -.4 -.2 -2.7 -2.5 -6.2 -2.4 -.3 -.3 -1.2
.0 -1.0 .0 -.7 -.2 .3 -1.7 -1.4 -.7 -1.0 -1.3 -.6 -1.3 -1.8 -1.8

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6
5 6 4 5 4 4 4 3 4 5 4 4 4
6 4 4 7 3 4 4 4 5 5 4 4 7 7 11 10 9
4 8 4 4 4 5 5 4 4 9 10 7 9 8 7
4 5 3 3 4 4 4 4 5 4 11 9 12 11 10 10 8
5 4 4 5 5 5 6 6 4 4 5 4 5 5 5 5 5 9 11 14 11 9 7 8
4 5 5 4 4 3 5 6 4 4 11 9 11 10 10 7 7 7
6 6 5 6 5 5 8 8 10 7 7 8
5 5 5 5 4 12 7 6 11 5 3 3 2 8 8 8 10 9 9 7
7 4 4 5 6 5 5 4 8 6 6 6 7 8 7 7 10 6 8 8 8
5 6 6 6 4 6 5 6 6 7 6 6 6 7 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JUNE 1995


1 1 1 1 0 0 0 0 0 0
1 3 5 6 5 3 2 2 2 0 5 6 3 3 4 4 5 0 0 1 2 3 3 4 5 4 2
8 8 8 7 6 3 1 1 2 3 1 0 6 9 4 4 7 16 16 6 7 1 0 1 7 8 6 12 12 11 11 10
6 5 4 3 3 1 1 2 3 2 2 0 0 4 5 8 4 6 6 7 1 0 0 2 8 13 14 14 10 9 12 8 6 5
15 7 8 6 6 3 3 4 3 2 2 0 4 17 13 8 5 5 5 4 4 3 3 1 5 10 10 21 17 12 10 6 9 9 11 10
5 4 5 4 3 2 2 4 3 3 1 0 16 14 18 17 12 12 11 10 6 4 3 8 7 8 26 20 20 17 6 4 7 6 5
6 4 2 1 0 0 0 0 0 0 1 0 5 4 2 2 3 2 3 4 1 3 2 11 7 12 23 11 9 6 5 7
9 5 4 4 4 2 1 1 1 0 0 0 2 5 5 4 1 1 0 0 0 1 0 0 0 0 4 5 6 2 1 3 5 5 4
14 11 11 12 11 8 6 4 2 1 0 0 7 5 6 6 5 4 3 2 2 2 0 0 0 1 3 4 6 6 4 4 6 9
3 4 4 4 4 5 4 5 5 4 1 6 17 16 14 14 11 11 10 9 2 0 0 1 5 5 5 5 6 5 3 2
1 2 2 1 1 1 1 1 1 1 0 4 9 11 12 9 11 7 5 1 5 4 3 4 4 3 0
0 0 0

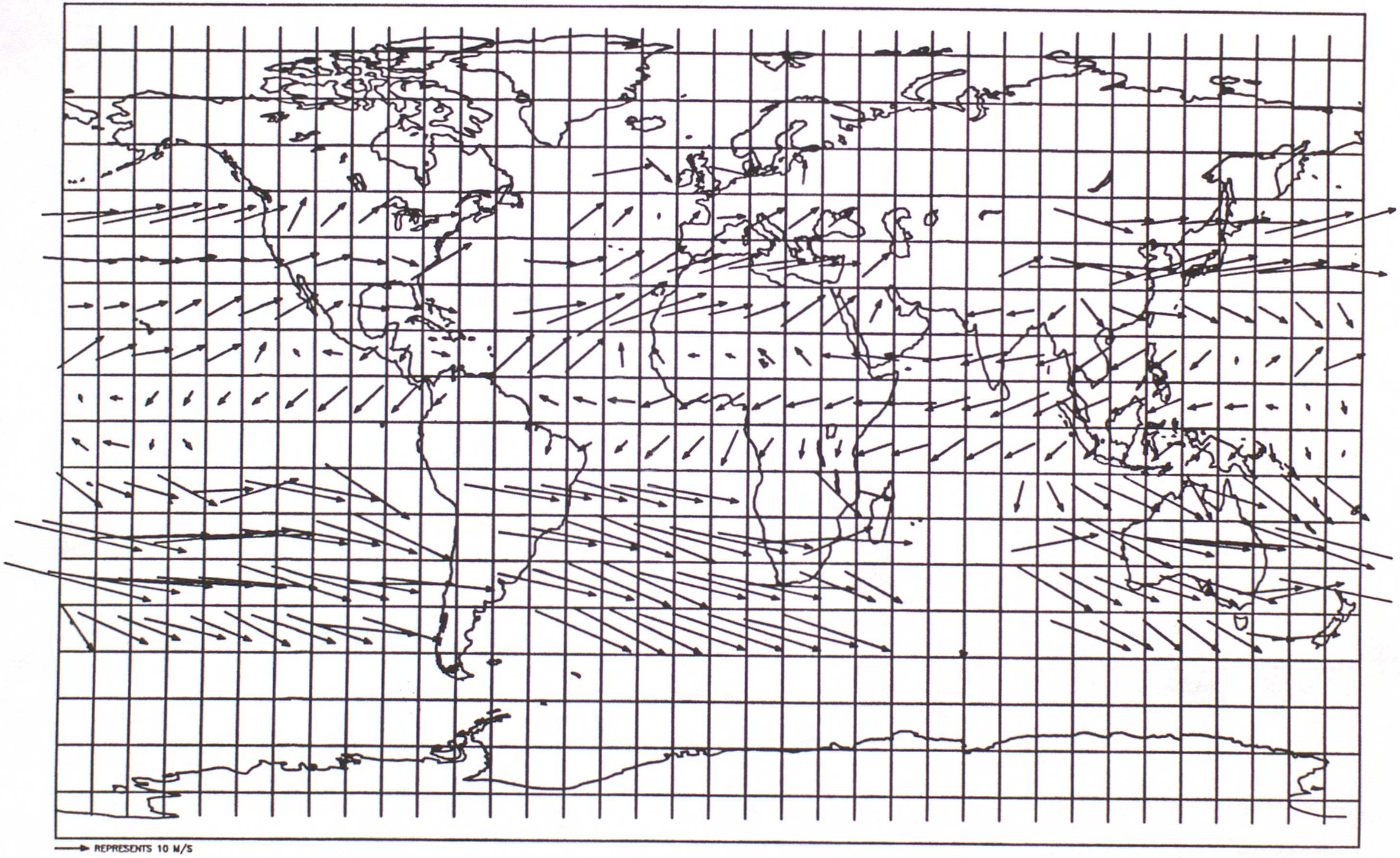
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

JUNE 1995

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

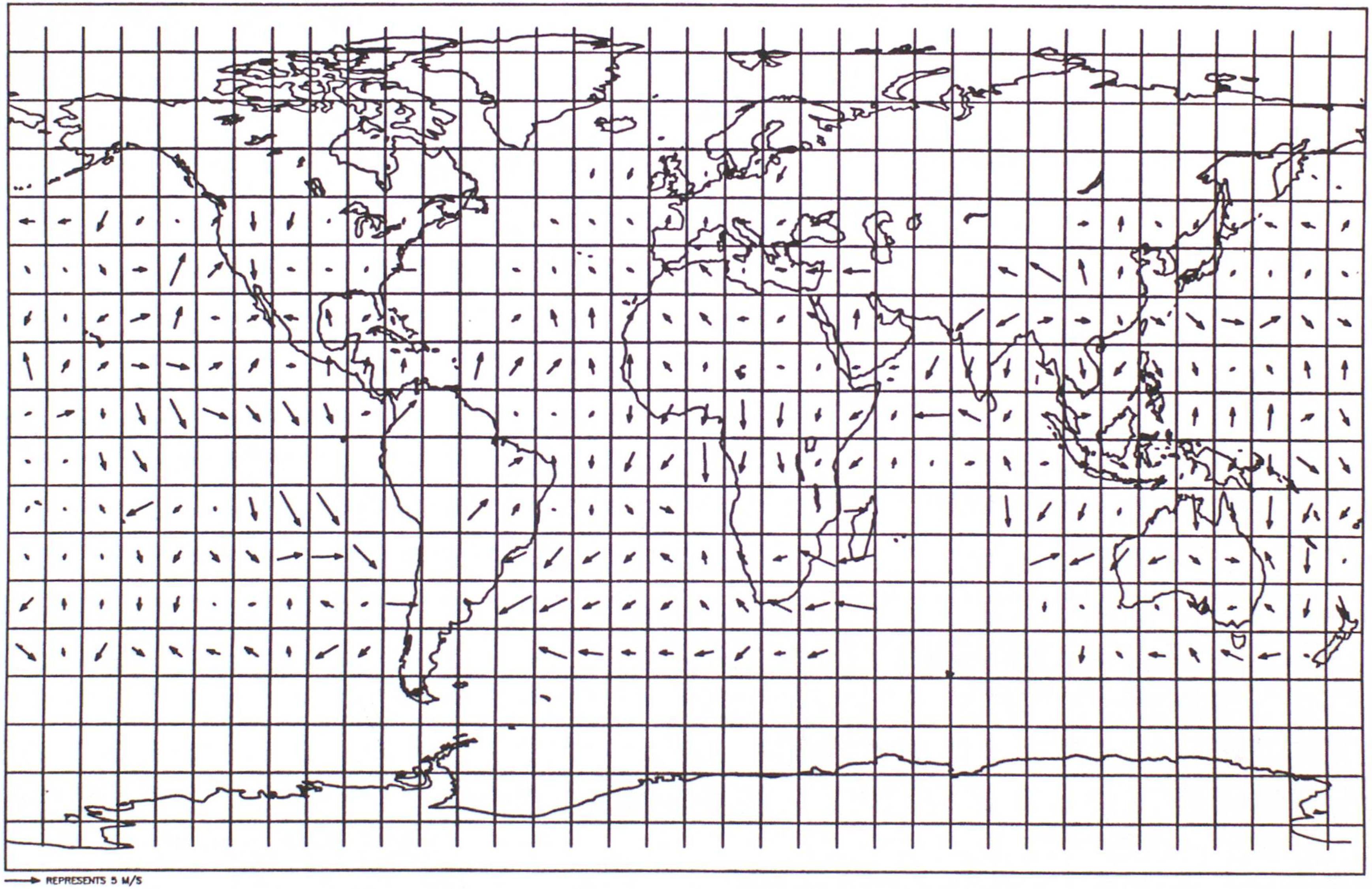
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FIGURE 22

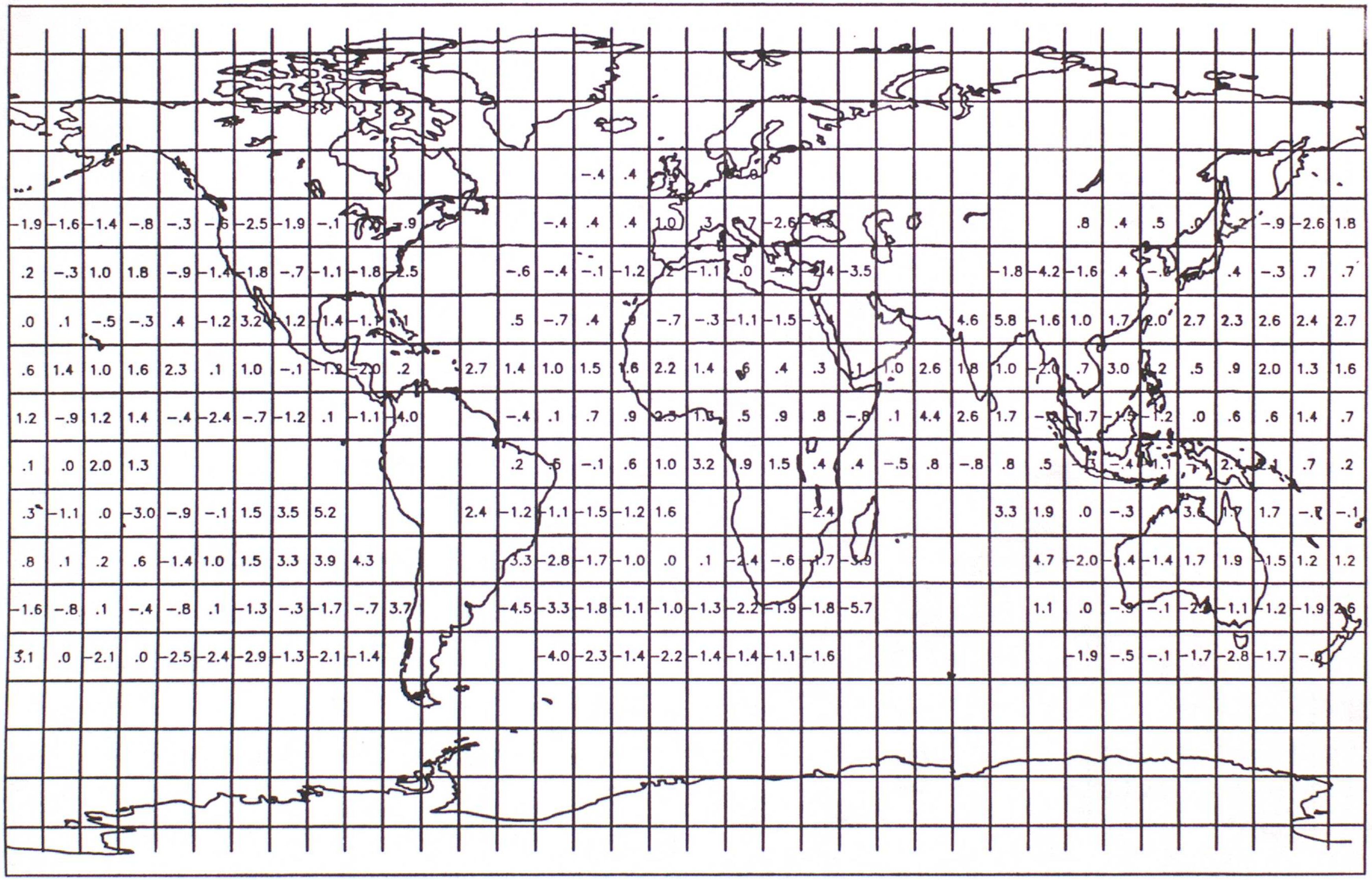
JUNE 1995

ALL OBSERVATIONS

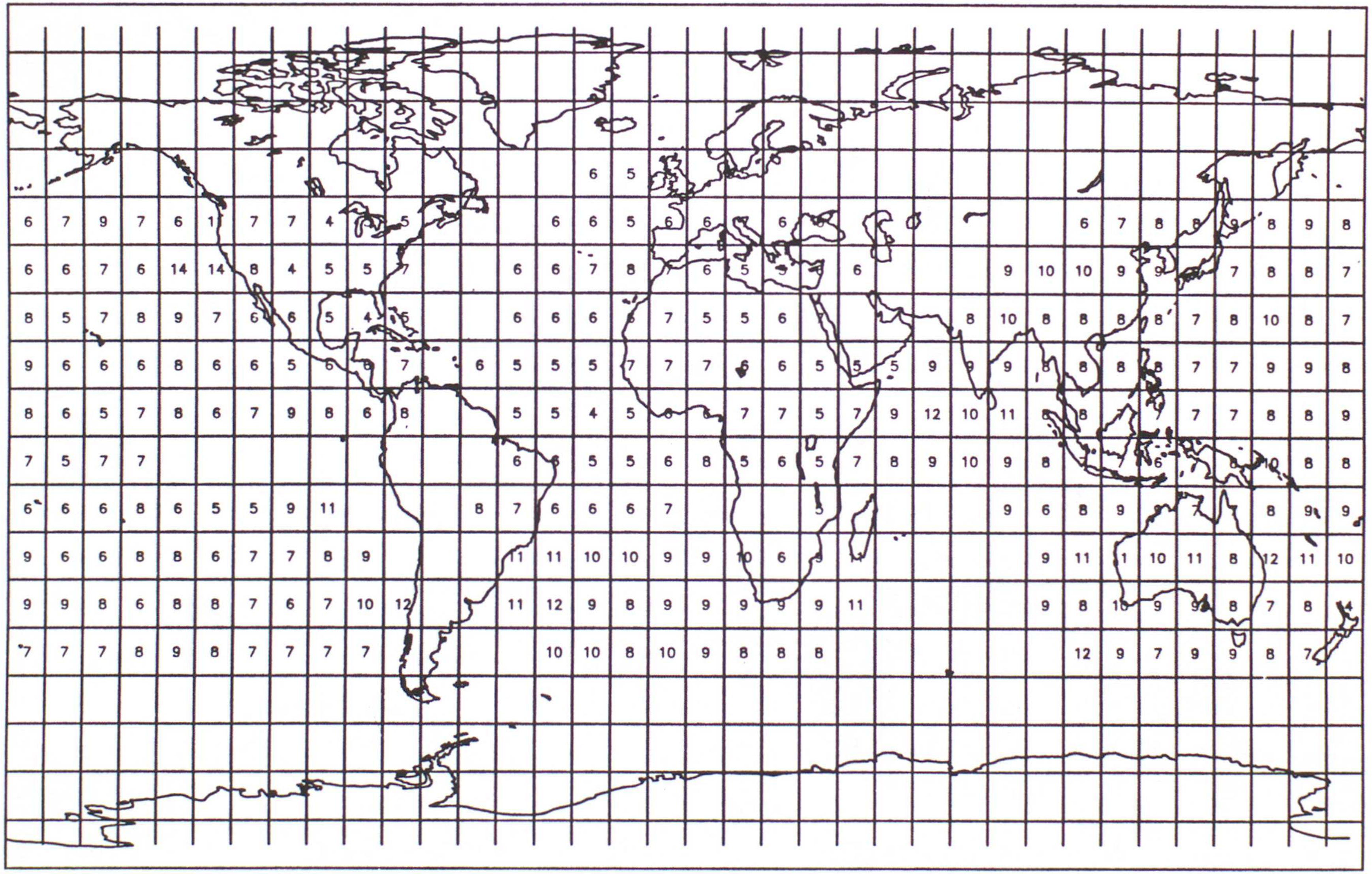
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.4 .4
-1.9 -1.6 -1.4 -.8 -.3 -.6 -2.5 -1.9 -.1 -.9 -.4 .4 .4 1.0 .3 .7 -2.6 .8 .4 .5 .0 .2 -.9 -2.6 1.8
.2 -.3 1.0 1.8 -.9 -1.4 -1.8 -.7 -1.1 -1.8 -2.5 -.6 -.4 -.1 -1.2 .2 -1.1 .0 -2.4 -3.5 -1.8 -4.2 -1.6 .4 .4 -.3 .7 .7
.0 .1 -.5 -.3 .4 -1.2 3.2 -1.2 -1.4 -1.1 .1 .5 -.7 .4 -.7 -.3 -1.1 -1.5 4.6 5.8 -1.6 1.0 1.7 2.0 2.7 2.3 2.6 2.4 2.7
.6 1.4 1.0 1.6 2.3 .1 1.0 -.1 -1.2 -2.0 .2 2.7 1.4 1.0 1.5 1.6 2.2 1.4 .6 .4 .3 .1 1.0 2.6 1.8 1.0 -2.0 .7 3.0 .2 .5 .9 2.0 1.3 1.6
1.2 -.9 1.2 1.4 -.4 -2.4 -.7 -1.2 .1 -1.1 -4.0 -.4 .1 .7 .9 2.5 1.3 .5 .9 .8 -.8 .1 4.4 2.6 1.7 -1.7 -1.2 .0 .6 .6 1.4 .7
.1 .0 2.0 1.3 .2 .5 -.1 .6 1.0 3.2 1.9 1.5 .4 .4 -.5 .8 -.8 .8 .5 -.4 1.1 2.1 .7 .2
.3 -1.1 .0 -3.0 -.9 -.1 1.5 3.5 5.2 2.4 -1.2 -1.1 -1.5 -1.2 1.6 -2.4 3.3 1.9 .0 -.3 3.6 1.7 1.7 -.1
.8 .1 .2 .6 -1.4 1.0 1.5 3.3 3.9 4.3 -3.3 -2.8 -1.7 -1.0 .0 .1 -2.4 -.6 -1.7 -3.9 4.7 -2.0 -1.4 -1.4 1.7 1.9 -1.5 1.2 1.2
-1.6 -.8 .1 -.4 -.8 .1 -1.3 -.3 -1.7 -.7 3.7 -4.5 -3.3 -1.8 -1.1 -1.0 -1.3 -2.2 -1.9 -1.8 -5.7 1.1 .0 -.9 -.1 -2.3 -1.1 -1.2 -1.9 2.6
3.1 .0 -2.1 .0 -2.5 -2.4 -2.9 -1.3 -2.1 -1.4 -4.0 -2.3 -1.4 -2.2 -1.4 -1.4 -1.1 -1.6 -1.9 -.5 -.1 -1.7 -2.8 -1.7 -.8

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
JUNE 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 5
6 7 9 7 6 1 7 7 4 5 6 6 5 6 6 6 6 7 8 8 9 8 9 8
6 6 7 6 14 14 8 4 5 5 7 6 6 7 8 7 6 5 5 6 9 10 10 9 9 7 8 8 7
8 5 7 8 9 7 6 6 5 4 5 6 6 6 6 7 5 5 6 7 8 10 8 8 8 8 7 8 10 8 7
9 6 6 6 8 6 6 5 6 6 7 6 5 5 5 7 7 7 6 6 5 5 5 9 9 9 8 8 8 8 7 7 9 9 8
8 6 5 7 8 6 7 9 8 6 8 5 5 4 5 6 6 7 7 5 7 9 12 10 11 8 8 7 7 7 7 8 8 9
7 5 7 7 6 6 5 5 6 8 5 6 5 7 8 9 10 9 8 7 7 6 7 8 10 8 8
6 6 6 8 6 5 5 9 11 8 7 6 6 6 7 5 9 6 8 9 9 7 7 8 9 9
9 6 6 8 8 6 7 7 8 9 11 11 10 10 9 9 10 6 9 11 9 11 11 10 11 8 12 11 10
9 9 8 6 8 8 7 6 7 10 12 11 12 9 8 9 9 9 9 9 11 9 8 10 9 9 8 7 8 14
7 7 7 8 9 8 7 7 7 7 10 10 8 10 9 8 8 8 12 9 7 9 9 8 7

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:June, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12 500 km.

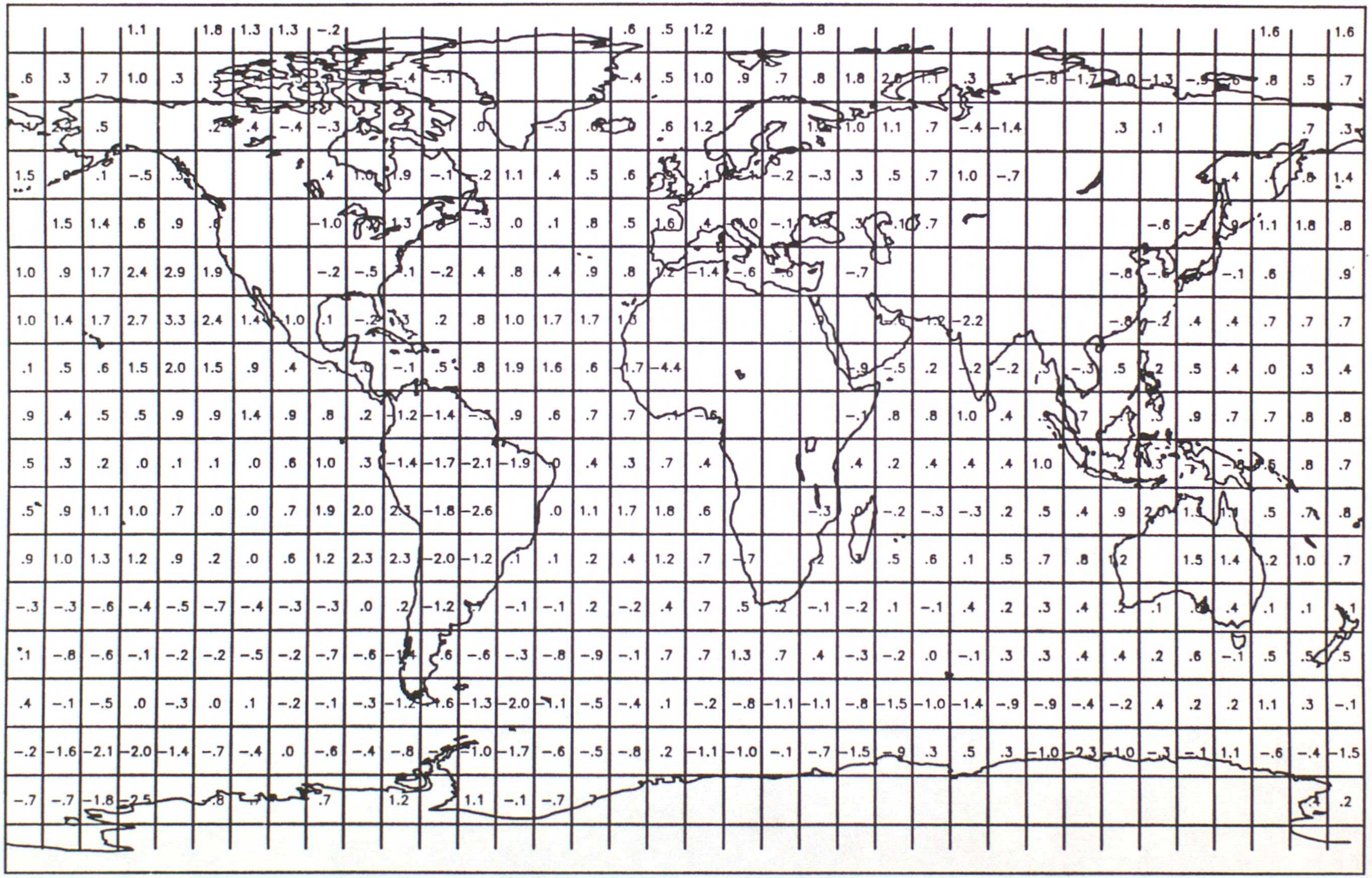
Standard of comparison :Background field from Bracknell global model.

Selection Criteria :All SATEM soundings where number of observations > 30.

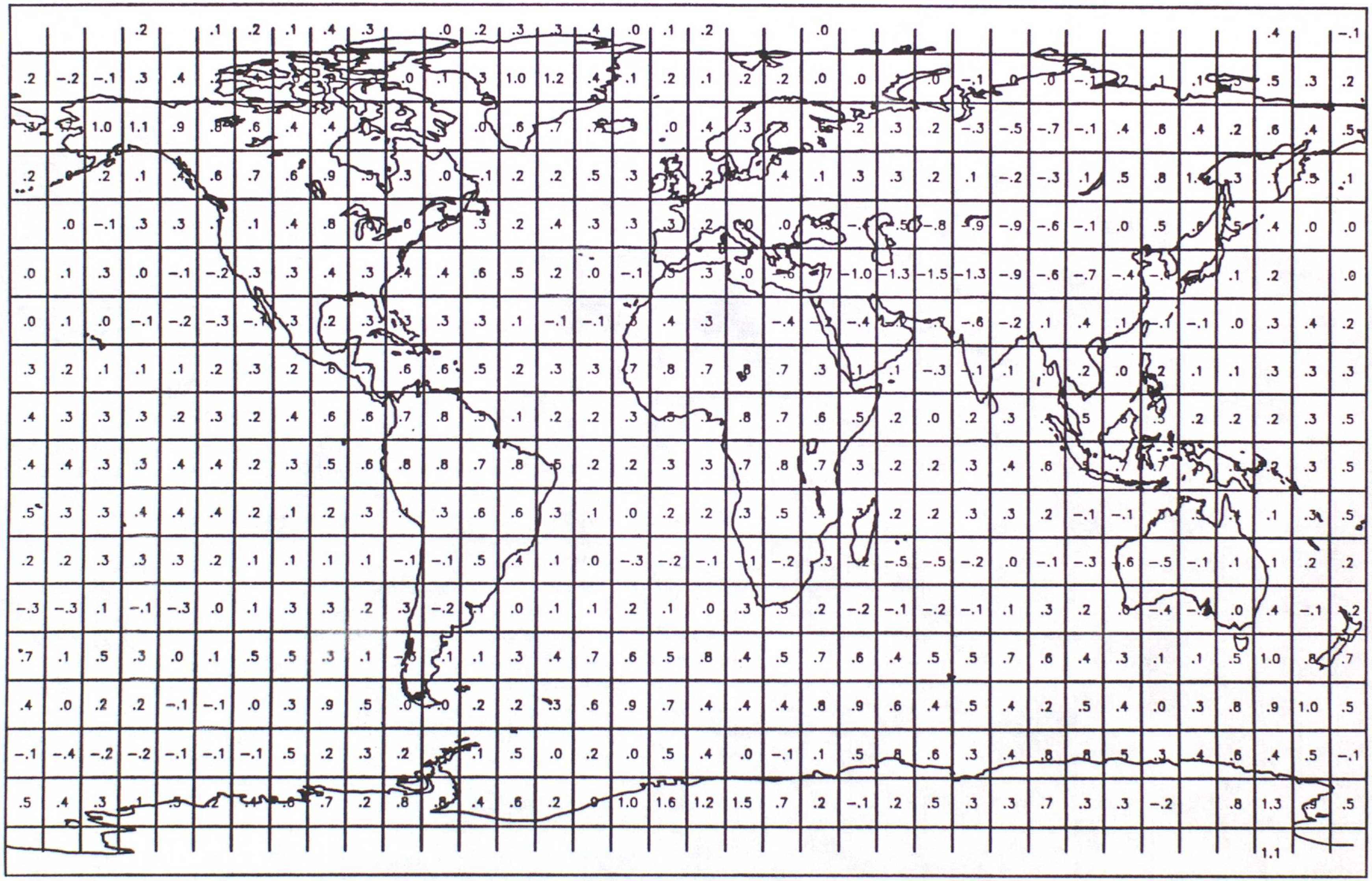
Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JUNE 1995 FIGURE 25
NOAA−12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.1 1.8 1.3 1.3 −.2 .6 .5 1.2 .8 1.6 1.6
.6 .3 .7 1.0 .3 −.4 −.1 −.4 .5 1.0 .9 .7 .8 1.8 2.0 1.1 .3 .3 −.8 −1.7 −1.0 −1.3 .8 .5 .7
2.2 .5 .2 .4 −.4 −.3 .0 −.3 .6 .6 1.2 1.0 1.1 .7 −.4 −1.4 .3 .1 .7 .3
1.5 .1 −.5 .3 .4 1.0 1.9 −.1 .2 1.1 .4 .5 .6 .1 −.2 −.3 .3 .5 .7 1.0 −.7 .4 .8 1.4
1.5 1.4 .6 .9 .6 −1.0 1.3 −.3 .0 .1 .8 .5 1.6 .4 .0 −.1 .3 .1 .7 −.6 .9 1.1 1.8 .8
1.0 .9 1.7 2.4 2.9 1.9 −.2 −.5 .1 −.2 .4 .8 .4 .9 .8 1.2 −1.4 −.6 −.7 −.8 −.1 .6 .9
1.0 1.4 1.7 2.7 3.3 2.4 1.4 −1.0 .1 −.2 .3 .2 .8 1.0 1.7 1.7 −2.2 −.8 −.2 .4 .4 .7 .7 .7
.1 .5 .6 1.5 2.0 1.5 .9 .4 −.1 .5 .8 1.9 1.6 .6 −1.7 −4.4 −.9 −.5 .2 −.2 −.2 −.3 .5 .2 .5 .4 .0 .3 .4
.9 .4 .5 .5 .9 .9 1.4 .9 .8 .2 −1.2 −1.4 .9 .6 .7 .7 −.6 −.1 .8 .8 1.0 .4 .7 .3 .9 .7 .7 .8 .8
.5 .3 .2 .0 .1 .1 .0 .6 1.0 .3 −1.4 −1.7 −2.1 −1.9 .4 .3 .7 .4 .4 .2 .4 .4 .4 1.0 .2 .3 .7 .5 .8 .7
.5 .9 1.1 1.0 .7 .0 .0 .7 1.9 2.0 2.3 −1.8 −2.6 .0 1.1 1.7 1.8 .6 −.3 .0 −.2 −.3 −.3 .2 .5 .4 .9 2.0 1.5 1.1 .5 .7 .8
.9 1.0 1.3 1.2 .9 .2 .0 .6 1.2 2.3 2.3 −2.0 −1.2 .1 .1 .2 .4 1.2 .7 −.7 .2 .3 .5 .6 .1 .5 .7 .8 1.2 1.5 1.4 .2 1.0 .7
−.3 −.3 −.6 −.4 −.5 −.7 −.4 −.3 −.3 .0 .2 −1.2 −.7 −.1 −.1 .2 −.2 .4 .7 .5 .2 −.1 −.2 .1 −.1 .4 .2 .3 .4 .2 .1 .6 .4 .1 .1 .1
.1 −.8 −.6 −.1 −.2 −.2 −.5 −.2 −.7 −.6 −1.4 .6 −.6 −.3 −.8 −.9 −.1 .7 .7 1.3 .7 .4 −.3 −.2 .0 −.1 .3 .3 .4 .4 .2 .6 −.1 .5 .5 .5
.4 −.1 −.5 .0 −.3 .0 .1 −.2 −.1 −.3 −1.2 −1.6 −1.3 −2.0 −1.1 −.5 −.4 .1 −.2 −.8 −1.1 −1.1 −.8 −1.5 −1.0 −1.4 −.9 −.9 −.4 −.2 .4 .2 .2 1.1 .3 −.1
−.2 −1.6 −2.1 −2.0 −1.4 −.7 −.4 .0 −.6 −.4 −.8 −1.0 −1.7 −.6 −.5 −.8 .2 −1.1 −1.0 −.1 −.7 −1.5 −.9 .3 .5 .3 −1.0 −2.3 −1.0 −.3 −.1 1.1 −.6 −.4 −1.5
−.7 −.7 −1.8 −2.5 .8 .7 1.2 1.1 −.1 −.7 .4 .2

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JUNE 1995
FIGURE 26
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JUNE 1995
NOAA−12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 27

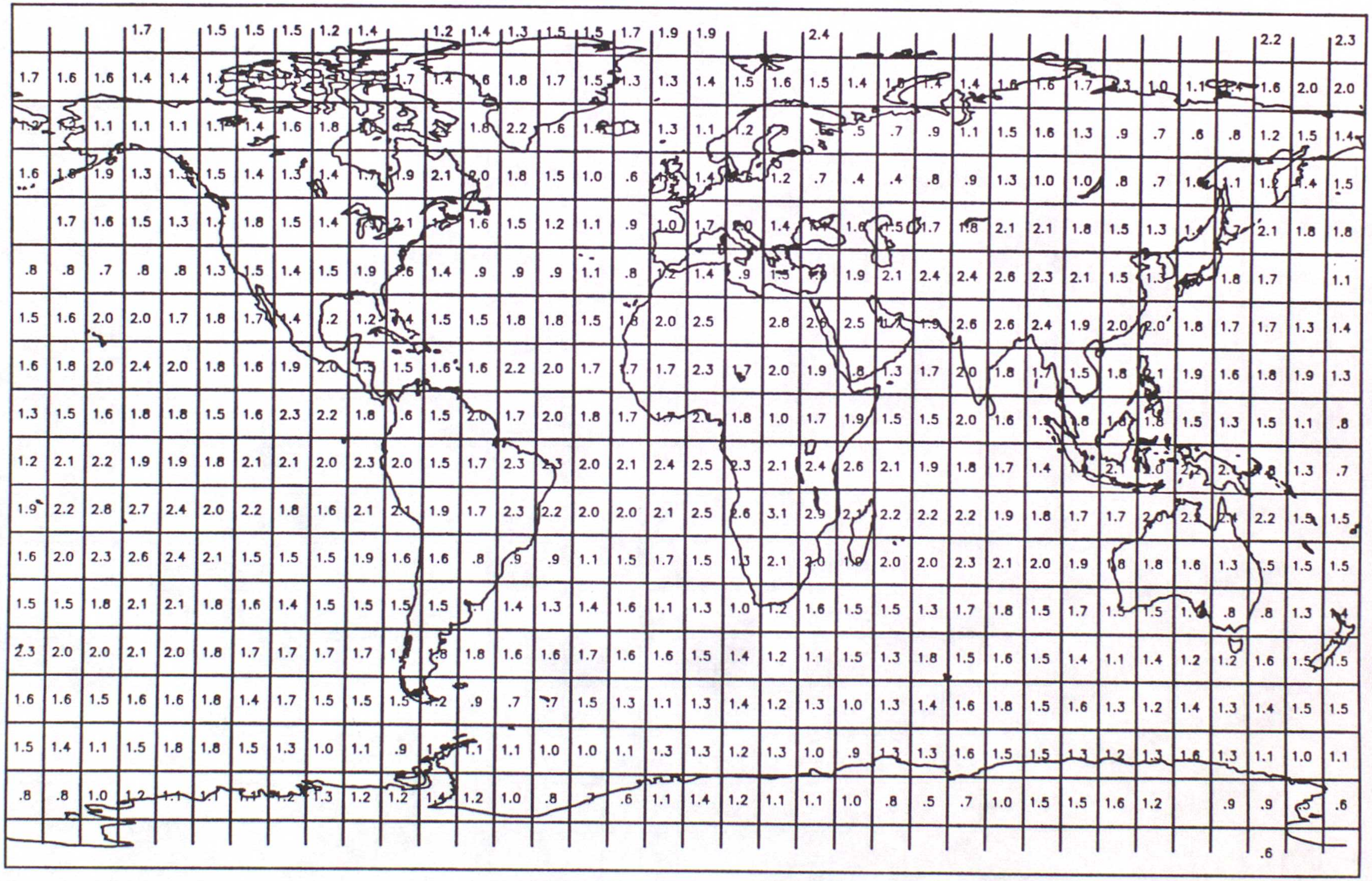

1.7 1.5 1.5 1.5 1.2 1.4 1.2 1.4 1.3 1.5 1.5 1.7 1.9 1.9 2.4 2.2 2.3
1.7 1.6 1.6 1.4 1.4 1.5 1.7 1.4 1.6 1.8 1.7 1.5 1.3 1.3 1.4 1.5 1.6 1.5 1.4 1.6 1.4 1.4 1.6 1.6 1.7 2.3 1.0 1.1 1.4 1.6 2.0 2.0
1.2 1.2 1.1 1.1 1.1 1.1 1.4 1.6 1.8 1.8 2.2 1.6 1.4 1.3 1.3 1.1 1.2 .5 .5 .7 .9 1.1 1.5 1.6 1.3 .9 .7 .6 .8 1.2 1.5 1.4
1.6 1.8 1.9 1.3 1.3 1.5 1.4 1.3 1.4 1.7 1.9 2.1 2.0 1.8 1.5 1.0 .6 1.4 1.4 1.6 1.2 .7 .4 .4 .8 .9 1.3 1.0 1.0 .8 .7 1.6 1.1 1.2 1.4 1.5
1.7 1.6 1.5 1.3 1.4 1.8 1.5 1.4 2.1 1.6 1.5 1.2 1.1 .9 1.0 1.7 2.0 1.4 1.6 1.5 1.7 1.8 2.1 2.1 1.8 1.5 1.3 1.4 1.7 2.1 1.8 1.8
.8 .8 .7 .8 .8 1.3 1.5 1.4 1.5 1.9 1.6 1.4 .9 .9 .9 1.1 .8 1.2 1.4 .9 1.5 1.9 1.9 2.1 2.4 2.4 2.6 2.3 2.1 1.5 1.3 1.8 1.7 1.1
1.5 1.6 2.0 2.0 1.7 1.8 1.7 1.4 1.2 1.2 1.4 1.5 1.5 1.8 1.8 1.5 1.8 2.0 2.5 2.8 2.6 2.5 1.7 1.9 2.6 2.6 2.4 1.9 2.0 2.0 1.8 1.7 1.7 1.3 1.4
1.6 1.8 2.0 2.4 2.0 1.8 1.6 1.9 2.0 1.5 1.5 1.6 1.6 2.2 2.0 1.7 1.7 1.7 2.3 1.7 2.0 1.9 1.8 1.3 1.7 2.0 1.8 1.7 1.5 1.8 2.1 1.9 1.6 1.8 1.9 1.3
1.3 1.5 1.6 1.8 1.8 1.5 1.6 2.3 2.2 1.8 .6 1.5 2.0 1.7 2.0 1.8 1.7 1.7 2.1 1.8 1.0 1.7 1.9 1.5 1.5 2.0 1.6 1.9 1.8 1.6 1.8 1.5 1.3 1.5 1.1 .8
1.2 2.1 2.2 1.9 1.9 1.8 2.1 2.1 2.0 2.3 2.0 1.5 1.7 2.3 2.3 2.0 2.1 2.4 2.5 2.3 2.1 2.4 2.6 2.1 1.9 1.8 1.7 1.4 1.4 2.1 2.0 2.1 2.1 1.8 1.3 .7
1.9 2.2 2.8 2.7 2.4 2.0 2.2 1.8 1.6 2.1 2.1 1.9 1.7 2.3 2.2 2.0 2.0 2.1 2.5 2.6 3.1 2.9 2.1 2.2 2.2 2.2 1.9 1.8 1.7 1.7 2.0 2.1 2.4 2.2 1.5 1.5
1.6 2.0 2.3 2.6 2.4 2.1 1.5 1.5 1.5 1.9 1.6 1.6 .8 .9 .9 1.1 1.5 1.7 1.5 1.3 2.1 2.0 1.9 2.0 2.0 2.3 2.1 2.0 1.9 1.8 1.8 1.6 1.3 1.5 1.5 1.5
1.5 1.5 1.8 2.1 2.1 1.8 1.6 1.4 1.5 1.5 1.5 1.5 1.1 1.4 1.3 1.4 1.6 1.1 1.3 1.0 1.2 1.6 1.5 1.5 1.3 1.7 1.8 1.5 1.7 1.5 1.5 1.6 .8 .8 1.3 1.4
2.3 2.0 2.0 2.1 2.0 1.8 1.7 1.7 1.7 1.7 1.8 1.8 1.8 1.6 1.6 1.7 1.6 1.6 1.5 1.4 1.2 1.1 1.5 1.3 1.8 1.5 1.6 1.5 1.4 1.1 1.4 1.2 1.2 1.6 1.5 1.5
1.6 1.6 1.5 1.6 1.6 1.8 1.4 1.7 1.5 1.5 1.5 1.2 .9 .7 .7 1.5 1.3 1.1 1.3 1.4 1.2 1.3 1.0 1.3 1.4 1.6 1.8 1.5 1.6 1.3 1.2 1.4 1.3 1.4 1.5 1.5
1.5 1.4 1.1 1.5 1.8 1.8 1.5 1.3 1.0 1.1 .9 1.1 1.1 1.1 1.0 1.0 1.1 1.3 1.3 1.2 1.3 1.0 .9 1.3 1.3 1.6 1.5 1.5 1.3 1.2 1.3 1.6 1.3 1.1 1.0 1.1
.8 .8 1.0 1.2 1.1 1.1 1.1 1.2 1.3 1.2 1.2 1.4 1.2 1.0 .8 .7 .6 1.1 1.4 1.2 1.1 1.1 1.0 .8 .5 .7 1.0 1.5 1.5 1.6 1.2 .9 .9 .6
.6

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for drifting buoy.
Area monitored	:10°N - 80°N, 85°W - 0°W
Standard of comparison	:Background field from Bracknell global model.
Position	:Average latitude and longitude for period.
Observation times	:All hours combined.
Elements monitored	:Mean sea-level pressure (hPa) :Wind speed ($m\ s^{-1}$) :Wind direction (degrees)

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS	:15 hPa	(pressure)
	:25 $m\ s^{-1}$	(Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25538	67.1	-27.5	ALL	MSLP	SUR	9	0	0	0.4	-0.7	0.8
25552	72.8	-17.7	ALL	MSLP	SUR	223	0	0	1.1	-0.3	1.1
25565	57.9	-49.7	ALL	MSLP	SUR	663	1	0	1.7	-0.6	1.8
40602	20.8	-53.1	ALL	MSLP	SUR	2	0	0	1.0	3.0	3.2
40603	19.4	-54.2	ALL	MSLP	SUR	6	0	0	1.1	1.6	1.9
40804	11.7	-41.5	ALL	MSLP	SUR	4	0	0	0.2	2.3	2.4
44613	49.1	-45.8	ALL	MSLP	SUR	690	2	0	1.3	-0.2	1.3
44616	55.3	-44.3	ALL	MSLP	SUR	1523	2	0	1.5	0.5	1.5
44624	48.4	-14.1	ALL	MSLP	SUR	1225	5	0	1.1	-0.2	1.1
44726	53.7	-14.7	ALL	MSLP	SUR	1472	5	0	1.1	0.7	1.3
44728	55.7	-43.1	ALL	MSLP	SUR	1425	1	0	1.4	-0.2	1.4
44742	57.4	-42.7	ALL	MSLP	SUR	1828	0	0	1.3	-0.1	1.3
44762	52.3	-10.2	ALL	MSLP	SUR	4	0	0	3.3	-6.9	7.6
44764	58.7	-12.9	ALL	MSLP	SUR	1725	1	0	1.2	0.3	1.2
44776	59.3	-3.8	ALL	MSLP	SUR	386	0	0	0.8	-0.1	0.8
44777	37.9	-37.9	ALL	MSLP	SUR	489	0	0	1.1	0.0	1.1
44779	33.4	-39.9	ALL	MSLP	SUR	534	0	0	0.9	0.2	1.0
44780	54.0	-15.1	ALL	MSLP	SUR	1525	7	0	0.9	0.1	0.9
62511	48.5	-16.8	ALL	MSLP	SUR	421	4	1	1.5	0.5	1.6
62517	47.5	-22.3	ALL	MSLP	SUR	752	0	0	0.9	0.2	0.9
62518	45.7	-16.7	ALL	MSLP	SUR	696	0	0	0.8	-0.2	0.8
62519	48.2	-20.5	ALL	MSLP	SUR	721	6	1	1.0	-0.2	1.0
62524	26.9	-44.9	ALL	MSLP	SUR	741	0	0	1.1	0.1	1.1
62673	56.1	-30.9	ALL	MSLP	SUR	864	0	0	1.1	0.5	1.2
62675	55.5	-25.3	ALL	MSLP	SUR	840	0	0	0.9	0.2	1.0
64529	59.3	-26.1	ALL	MSLP	SUR	178	53	30	0.8	0.1	0.8
64544	56.7	-42.6	ALL	MSLP	SUR	320	0	0	1.3	0.1	1.3
64575	61.9	-27.4	ALL	MSLP	SUR	916	0	0	0.9	0.4	1.0
64576	59.2	-18.1	ALL	MSLP	SUR	884	0	0	0.9	0.1	0.9
64577	60.0	-15.5	ALL	MSLP	SUR	825	0	0	0.9	-0.1	1.0
64588	56.9	-35.9	ALL	MSLP	SUR	142	0	0	1.7	0.3	1.7
65562	59.2	-23.9	ALL	MSLP	SUR	1768	1	0	1.0	-0.2	1.0
65581	59.1	-40.8	ALL	MSLP	SUR	1571	4	0	1.2	-0.3	1.3
WIND SPEED											
40602	20.8	-53.1	ALL	SPEED	SUR	2	0	0	1.1	1.7	2.0
40603	19.4	-54.2	ALL	SPEED	SUR	6	0	0	1.8	0.3	1.8
40804	11.7	-41.5	ALL	SPEED	SUR	4	0	0	1.2	1.0	1.6
44613	49.1	-45.8	ALL	SPEED	SUR	674	2	0	1.9	-0.5	1.9
44742	57.4	-42.7	ALL	SPEED	SUR	1664	1	0	3.1	-2.8	4.2
44762	52.3	-10.2	ALL	SPEED	SUR	2	0	0	9.9	4.2	10.8
44764	58.7	-12.9	ALL	SPEED	SUR	1181	3	0	2.4	-3.5	4.2
44776	59.3	-3.8	ALL	SPEED	SUR	265	1	0	1.6	0.6	1.7
62518	45.7	-16.7	ALL	SPEED	SUR	677	0	0	1.2	0.2	1.3
62519	48.2	-20.5	ALL	SPEED	SUR	384	7	2	1.2	0.2	1.2
WIND DIRECTION											
40602	20.8	-53.1	ALL	DIRN.	SUR	2	0	0	6.3	9.8	11.6
40603	19.4	-54.2	ALL	DIRN.	SUR	6	0	0	10.4	7.3	12.7
40804	11.7	-41.5	ALL	DIRN.	SUR	4	0	0	14.8	-8.5	17.0
44613	49.1	-45.8	ALL	DIRN.	SUR	492	2	0	18.6	26.2	32.2
44742	57.4	-42.7	ALL	DIRN.	SUR	1167	1	0	35.5	27.0	44.6
44762	52.3	-10.2	ALL	DIRN.	SUR	2	0	0	54.7	-7.6	55.2
44764	58.7	-12.9	ALL	DIRN.	SUR	702	3	0	24.1	-8.9	25.7
44776	59.3	-3.8	ALL	DIRN.	SUR	161	1	1	59.7	-10.7	60.6
62518	45.7	-16.7	ALL	DIRN.	SUR	536	0	0	11.7	0.2	11.7
62519	48.2	-20.5	ALL	DIRN.	SUR	314	7	2	9.4	-7.7	12.2

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: June, 95

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
	TEMPERATURE					WIND					
AAL	2847	0	1	1.7	-0.2	2859	0	2	0	7.5	0.9
AAN	69	3	6	2.1	-0.8	63	0	6	0	11.4	1.4
ACA	953	1	1	1.9	0.0	971	0	2	1	6.6	1.2
ACU	23	4	9	1.7	-1.2	24	0	4	0	11.9	1.9
AEA	130	5	100	4.7	2.1	127	0	13	0	9.5	0.1
AEL	231	0	4	1.9	-0.4	232	0	3	0	8.4	1.0
AFL	240	1	100	2.7	1.4	239	0	5	2	8.0	1.2
AFR	692	1	4	1.8	-0.4	706	0	5	0	7.0	0.9
AIC	34	0	0	1.8	0.9	36	0	0	0	9.2	1.9
AIH	130	2	2	1.4	0.1	131	0	3	0	8.2	0.9
AMT	40	0	13	1.6	0.4	43	0	12	0	6.5	0.8
AMX	130	2	1	1.6	-0.4	130	0	2	0	7.9	1.4
ANZ	161	1	4	1.9	-0.4	162	0	3	0	7.1	1.0
AOM	265	0	2	1.5	0.6	265	0	2	0	7.1	1.1
ARP	24	0	0	3.2	2.1	24	0	0	0	8.0	0.5
AUA	83	0	2	1.5	-0.8	83	0	2	0	6.2	1.1
AVA	106	1	3	1.7	-0.5	108	0	3	0	7.3	1.7
AZA	448	0	3	2.0	0.3	455	0	2	0	7.6	1.4
BAL	255	2	18	1.9	-0.6	260	0	17	0	7.1	0.9
BAW	1467	0	3	1.9	0.1	1484	0	3	0	7.3	1.1
BBB	81	0	20	1.9	-0.8	83	0	22	0	8.8	0.2
BWA	100	0	3	1.7	0.8	101	0	8	1	8.1	1.0
CDN	697	0	1	1.8	0.2	697	0	2	2	7.1	0.8
CFG	448	0	1	2.2	-1.3	455	0	2	0	7.4	0.9
CKT	73	1	3	1.7	-0.2	74	0	4	0	6.6	1.2
CLI	173	0	1	1.9	-0.3	176	0	2	0	7.8	0.7
CLX	50	2	0	1.5	-0.5	49	0	2	0	6.1	-0.4
CMM	173	0	49	1.7	0.0	175	0	11	1	7.1	0.6
COA	423	0	0	1.7	0.6	425	0	3	1	8.1	0.8
CRL	97	4	5	1.9	0.1	100	0	5	0	7.8	1.5
CSA	23	0	4	1.8	-1.3	23	0	0	0	7.5	2.9
CTM	44	2	11	2.0	-0.2	47	0	13	0	6.7	1.7
CUB	77	1	4	2.2	1.1	79	1	100	1	9.0	0.9
DAF	42	0	2	2.4	-1.2	42	0	2	2	6.5	0.6
DAL	3145	0	2	1.8	0.2	3158	0	3	0	7.6	0.9
DHL	417	3	100	3.9	-2.0	416	0	4	0	9.1	0.7
DLH	2333	0	11	2.2	0.5	2339	0	13	3	7.1	0.9
DOA	73	1	7	1.2	-0.3	73	0	11	0	7.3	0.6
ELY	159	0	4	1.9	0.0	160	0	6	1	7.7	0.8
EWW	26	8	15	4.1	-0.5	26	0	12	0	13.8	2.5
FDX	416	1	3	1.9	0.7	431	0	3	0	8.0	0.8
FIN	518	0	2	2.1	0.6	517	0	3	1	7.8	1.1
GAF	183	1	3	2.1	0.4	183	0	1	0	8.1	1.1
GFA	28	0	4	2.2	0.2	28	0	0	0	9.8	0.0
HLF	62	0	0	1.6	-1.0	65	0	2	0	8.0	0.9
IBE	949	1	21	1.8	0.3	958	0	22	0	9.2	0.8
ICE	397	0	0	1.6	-0.1	397	0	2	2	6.6	1.4
KLM	1808	0	2	1.9	0.2	1816	0	3	1	7.9	1.1
LDA	96	0	9	1.8	-1.2	97	0	10	0	6.4	0.4
LDI	57	0	0	1.9	-1.2	56	0	5	2	8.5	-1.1
LIB	114	0	7	1.8	0.4	115	0	9	0	6.9	0.4
LOT	480	0	1	1.9	-0.6	479	0	3	0	7.9	0.8
LTU	521	1	5	1.8	0.3	511	0	5	1	7.3	0.9
MAH	24	0	0	1.7	-1.2	24	0	8	0	7.6	0.4
MKD	49	0	0	1.4	-0.7	49	0	2	2	6.7	0.5
MPH	649	0	2	1.9	-0.6	650	0	2	0	7.1	0.7
NWA	2460	0	1	1.9	1.1	2490	0	2	1	7.6	0.5
OAL	52	0	2	1.7	0.3	54	0	0	0	6.6	1.7
RAF	24	0	0	1.2	0.1	24	0	0	0	6.2	0.4

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RIA	28	25	32	3.5	1.5	31	0	23	0	15.0	6.2
RJA	45	0	0	1.5	0.6	45	0	4	0	6.1	1.4
ROT	37	3	8	1.8	-1.2	37	0	5	0	7.9	1.7
ROY	30	0	0	2.3	1.1	33	0	3	0	7.5	1.9
RRR	161	1	20	2.6	-0.6	164	0	23	1	8.8	1.8
SAB	65	0	0	1.5	0.7	65	0	2	0	6.1	1.2
SAS	1356	0	1	1.9	-0.1	1347	0	2	1	7.4	0.5
SIA	42	0	0	2.0	-1.1	44	0	0	0	7.4	0.8
SPP	96	2	17	1.6	-0.3	96	0	16	0	7.6	0.8
SVA	130	0	5	1.6	0.2	134	0	7	1	7.7	0.0
SWR	161	1	5	2.1	-0.2	161	0	6	0	8.1	1.0
TAP	355	0	8	1.8	0.1	358	0	8	0	8.2	1.9
TEJ	30	0	13	1.0	-0.3	30	0	17	0	7.7	0.6
TOW	77	0	3	1.6	-0.3	81	0	6	1	8.8	0.4
TSC	161	0	4	1.9	0.4	161	0	3	0	8.0	1.9
TWA	1428	0	2	1.9	-0.1	1431	0	3	0	7.9	1.1
UAL	1870	0	2	2.1	-0.5	1901	0	2	1	7.4	0.9
ULE	110	0	2	1.3	0.0	110	0	3	0	6.9	0.5
UPS	485	0	14	1.9	0.0	495	0	15	0	7.8	1.1
USA	219	1	3	1.5	-0.4	218	0	3	0	6.9	1.1
VIA	99	2	3	1.8	1.0	100	0	4	0	8.6	1.3
VIR	224	0	1	1.7	-0.4	224	0	3	0	8.5	1.9
WOA	22	0	5	1.4	0.1	22	0	5	0	6.6	1.3
BA	8521	0	24	1.6	0.4	8519	0	23	0	6.5	1.0
KL	4240	0	51	2.3	1.8	4238	0	19	0	6.3	1.3
LH	358	0	10	1.9	0.0	358	0	11	1	6.5	0.7
M	122	1	100	3.1	1.0	121	0	100	0	9.5	0.7
N	283	1	4	2.5	0.6	296	0	4	0	8.9	0.4

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	100	1	0	0.0	37.0	37.0
DBLK	00	Z	100	1	0	0.0	21.0	-21.0
DBLK	12	Z	100	6	0	12.2	17.4	12.3
EHOA	00	Z	100	1	0	0.0	29.0	-29.0
EHOA	12	Z	100	17	0	12.6	15.9	9.7
FH	00	Z	100	1	0	0.0	17.0	-17.0
FNOR	00	Z	100	8	0	13.1	20.1	15.3
FNOR	12	Z	100	7	0	15.4	19.0	11.1
FNOU	00	Z	100	14	0	19.6	25.2	15.8
FNOU	12	Z	100	14	0	14.4	14.6	2.3
FNPH	00	Z	100	14	0	8.3	8.9	3.3
FNPH	12	Z	100	11	0	13.8	19.0	-13.1
FNRS	00	Z	100	12	0	12.2	13.3	5.3
FNRS	12	Z	100	12	0	8.0	14.1	-11.6
GACA	00	Z	100	27	0	10.1	14.5	10.4
GACA	12	Z	100	28	0	14.0	15.2	5.9
JBOA	00	Z	100	1	0	0.0	8.0	-8.0
JDWX	00	Z	100	1	0	0.0	28.0	28.0
LDWR	00	Z	100	30	0	10.0	10.5	3.3
LDWR	12	Z	100	29	0	17.3	17.8	-4.2
OXVH2	00	Z	100	16	1	10.5	12.7	7.2
OXVH2	12	Z	100	20	0	17.4	18.4	5.9
OXYH2	00	Z	100	16	0	20.1	21.9	8.7
OXYH2	12	Z	100	17	0	20.1	25.0	14.9
SHIP	00	Z	100	1	0	0.0	28.0	28.0
SHIPAF	00	Z	100	3	0	6.5	25.5	24.7
SHIPAF	12	Z	100	1	0	0.0	23.0	23.0
SHIPS	00	Z	100	2	0	10.5	45.7	44.5
SHIPS	12	Z	100	1	0	0.0	35.0	35.0
V2GH	00	Z	100	24	0	28.7	29.9	8.2
V2GH	12	Z	100	23	0	17.1	17.3	-2.6
V2LV	00	Z	100	20	0	20.2	23.1	-11.3
V2LV	12	Z	100	23	0	23.2	24.9	-9.0
V2LX	00	Z	100	25	0	17.6	24.7	17.4
V2LX	12	Z	100	23	1	11.8	16.7	11.8
WTEA	00	Z	100	1	0	0.0	23.0	-23.0
03953	00	Z	100	30	0	11.7	21.2	17.6
03953	12	Z	100	30	0	24.2	25.0	6.2
04018	00	Z	100	29	0	15.4	27.2	22.4
04018	12	Z	100	29	0	17.1	27.8	22.0
04220	00	Z	100	25	0	15.2	29.5	25.2
04220	12	Z	100	29	0	17.5	28.2	22.1
04270	00	Z	100	30	0	20.0	26.2	17.0
04270	12	Z	100	28	0	19.8	27.3	18.8
04339	00	Z	100	27	0	13.2	30.3	27.3
04339	12	Z	100	30	0	11.2	26.9	24.4
04360	00	Z	100	28	0	17.6	30.7	25.1
04360	12	Z	100	30	0	17.0	32.4	27.6
08001	00	Z	100	26	0	16.6	32.7	28.2
08001	12	Z	100	29	0	14.8	16.0	6.1
08508	00	Z	100	29	0	13.8	33.2	30.2
08508	12	Z	100	30	0	13.8	21.9	17.0
08594	00	Z	100	25	0	11.3	12.7	5.8
08594	12	Z	100	29	0	17.2	17.2	-0.7
60020	00	Z	100	30	0	18.2	24.3	16.0
60020	12	Z	100	30	0	15.8	16.5	4.7
71600	00	Z	100	28	0	15.3	17.6	8.8
71600	12	Z	100	28	0	14.5	15.2	4.5
72201	00	Z	100	22	0	37.1	37.5	5.6
72201	12	Z	100	24	0	19.6	29.4	21.9

```
 WMO   OBS               NUM   NUM
IDENT TIME ELM   LEV     OBS  GROSS     SD     RMS    BIAS

72402  00   Z    100     27      0     40.1    64.6    50.6
72402  12   Z    100     26      0     24.8    78.5    74.4
74494  00   Z    100     24      0     20.9    21.9    -6.7
74494  12   Z    100     26      0     27.8    53.4    45.6
78016  00   Z    100     17      0     17.2    19.1    -8.4

78016  12   Z    100     18      0     14.9    15.2    -3.3
```

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	500	1	0	0.0	4.0	-4.0
DBLK	00	Z	500	1	0	0.0	9.0	-9.0
DBLK	12	Z	500	7	0	5.2	7.3	-5.1
EHOA	00	Z	500	1	0	0.0	4.0	-4.0
EHOA	12	Z	500	19	0	7.9	11.7	8.6
FH	00	Z	500	1	0	0.0	22.0	-22.0
FNOR	00	Z	500	8	0	6.5	12.3	10.5
FNOR	12	Z	500	7	0	7.1	9.4	6.1
FNOU	00	Z	500	14	0	9.0	12.1	8.1
FNOU	12	Z	500	14	0	5.6	6.1	2.4
FNPH	00	Z	500	14	0	9.7	10.0	2.4
FNPH	12	Z	500	12	0	8.3	10.5	-6.3
FNRS	00	Z	500	14	0	10.8	11.6	-4.1
FNRS	12	Z	500	12	0	8.7	12.4	-8.8
GACA	00	Z	500	28	0	7.7	9.6	5.7
GACA	12	Z	500	28	0	8.5	9.7	4.7
JBOA	00	Z	500	1	0	0.0	9.0	-9.0
JDWX	00	Z	500	1	0	0.0	6.0	6.0
LDWR	00	Z	500	30	0	12.5	13.1	3.8
LDWR	12	Z	500	29	0	14.1	14.2	-1.0
ONRS	00	Z	500	1	0	0.0	9.0	-9.0
OXVH2	00	Z	500	20	0	13.4	14.3	-5.1
OXVH2	12	Z	500	21	0	15.6	16.0	3.5
OXYH2	00	Z	500	17	0	14.1	14.8	-4.4
OXYH2	12	Z	500	18	0	13.4	13.6	-2.6
SHIP	00	Z	500	1	0	0.0	10.0	10.0
SHIPAF	00	Z	500	4	0	7.4	12.1	9.5
SHIPAF	12	Z	500	1	0	0.0	6.0	6.0
SHIPS	00	Z	500	3	0	3.1	18.6	18.3
SHIPS	12	Z	500	1	0	0.0	18.0	18.0
V2GH	00	Z	500	24	0	13.3	14.7	6.3
V2GH	12	Z	500	24	0	14.9	15.0	1.8
V2LV	00	Z	500	24	0	13.3	13.9	-3.9
V2LV	12	Z	500	24	0	9.5	10.1	-3.5
V2LX	00	Z	500	26	0	11.7	14.5	8.5
V2LX	12	Z	500	24	0	26.2	27.7	8.9
WTEA	00	Z	500	1	0	0.0	16.0	-16.0
03953	00	Z	500	30	0	8.2	10.4	6.5
03953	12	Z	500	30	0	6.4	8.5	5.6
04018	00	Z	500	30	0	12.9	15.0	7.7
04018	12	Z	500	30	0	11.4	15.3	10.3
04220	00	Z	500	27	0	14.2	14.3	1.9
04220	12	Z	500	30	0	16.1	16.4	3.3
04270	00	Z	500	30	0	15.9	15.9	0.0
04270	12	Z	500	28	0	12.4	13.0	3.7
04339	00	Z	500	27	0	11.1	11.8	4.1
04339	12	Z	500	30	0	11.5	12.6	5.2
04360	00	Z	500	29	0	12.8	12.9	1.9
04360	12	Z	500	30	0	11.9	12.1	2.1
08001	00	Z	500	27	0	11.8	14.7	8.9
08001	12	Z	500	29	0	16.8	17.4	-4.4
08508	00	Z	500	29	0	10.2	11.3	4.9
08508	12	Z	500	30	0	11.3	11.4	-0.9
08594	00	Z	500	25	0	6.4	6.7	1.8
08594	12	Z	500	27	0	8.0	8.9	-3.8
60020	00	Z	500	30	0	10.0	17.2	14.0
60020	12	Z	500	30	0	15.0	18.5	10.9
71600	00	Z	500	28	0	10.2	10.6	3.2
71600	12	Z	500	28	0	8.5	10.4	6.0
72201	00	Z	500	25	0	6.7	12.5	10.5

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72201	12	Z	500	28	0	7.5	12.2	9.7
72402	00	Z	500	27	0	9.6	15.7	12.4
72402	12	Z	500	28	0	11.1	21.3	18.2
74494	00	Z	500	26	0	14.7	15.0	-3.3
74494	12	Z	500	27	0	15.7	18.2	9.1
78016	00	Z	500	17	0	8.8	9.0	-1.7
78016	12	Z	500	18	0	8.7	9.4	3.3

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	100	1	0	0	0.0	1.4	2.2
DBLK	00	V	100	1	0	0	4.5	0.3	6.5
DBLK	12	V	100	6	0	0	4.5	-0.8	1.2
EHOA	00	V	100	1	0	0	4.5	-5.9	2.6
EHOA	12	V	100	16	0	0	4.5	-1.6	1.0
FH	00	V	100	1	0	0	4.0	0.7	1.2
FNOR	00	V	100	8	0	0	4.0	0.5	-1.2
FNOR	12	V	100	7	0	0	4.0	-0.6	0.5
FNOU	00	V	100	14	0	0	4.0	1.1	0.6
FNOU	12	V	100	14	0	0	2.2	-0.1	0.3
FNPH	00	V	100	14	0	0	1.7	0.2	0.0
FNPH	12	V	100	10	0	0	3.3	-0.6	1.4
FNRS	00	V	100	12	0	0	2.2	0.2	2.4
FNRS	12	V	100	10	0	10	4.6	0.2	0.0
GACA	00	V	100	27	0	0	4.1	0.1	0.2
GACA	12	V	100	28	0	0	2.8	-0.5	0.3
JBOA	00	V	100	1	0	0	2.1	2.6	-1.0
JDWX	00	V	100	1	0	0	3.7	1.4	-1.1
LDWR	00	V	100	30	0	0	3.7	-0.6	0.1
LDWR	12	V	100	26	0	0	1.5	-0.6	-0.3
OXVH2	00	V	100	17	0	0	1.4	-0.4	0.3
OXVH2	12	V	100	20	0	0	2.0	-0.6	-0.1
OXYH2	00	V	100	16	0	0	1.9	0.3	0.4
OXYH2	12	V	100	17	0	0	1.7	0.0	-0.9
SHIP	00	V	100	1	0	0	1.4	1.0	-0.8
SHIPAF	00	V	100	3	0	0	1.4	0.2	0.0
SHIPAF	12	V	100	1	0	0	1.4	1.3	0.7
SHIPS	00	V	100	2	0	0	1.4	1.5	1.3
V2GH	00	V	100	25	0	0	1.4	2.3	-0.7
V2GH	12	V	100	23	0	0	5.2	1.6	0.5
V2LV	00	V	100	20	0	0	4.7	0.4	0.7
V2LV	12	V	100	22	0	4	3.9	0.4	0.1
V2LX	00	V	100	24	0	0	2.6	-0.8	0.9
V2LX	12	V	100	24	0	0	2.9	-0.6	1.1
03953	00	V	100	30	0	0	1.7	0.8	0.5
03953	12	V	100	30	0	0	2.3	0.9	0.0
04018	00	V	100	28	0	0	3.1	0.3	-0.8
04018	12	V	100	27	0	0	2.5	-0.3	-0.5
04220	00	V	100	25	0	0	2.1	-0.1	1.3
04220	12	V	100	29	0	0	2.1	0.3	0.3
04270	00	V	100	30	0	0	1.9	-0.1	1.2
04270	12	V	100	28	0	0	2.4	0.0	0.2
04339	00	V	100	27	0	0	2.3	1.3	0.2
04339	12	V	100	29	0	0	2.3	0.5	-0.1
04360	00	V	100	28	0	0	1.7	0.4	-0.1
04360	12	V	100	30	0	0	1.7	0.1	-0.6
08001	00	V	100	26	0	0	2.7	0.8	1.2
08001	12	V	100	28	0	0	2.5	-0.3	0.3
08508	00	V	100	29	0	0	3.4	1.0	0.9
08508	12	V	100	30	0	0	2.5	-0.5	0.3
08594	00	V	100	24	0	0	2.1	1.0	2.6
08594	12	V	100	29	1	3	3.4	8.2	2.3
60020	00	V	100	30	0	0	3.1	-0.4	1.3
60020	12	V	100	30	0	0	3.3	-0.9	0.6
71600	00	V	100	28	0	0	5.9	-0.4	-0.4
71600	12	V	100	28	0	0	2.2	-1.8	-0.3
72201	00	V	100	22	0	0	2.1	-1.6	0.4
72201	12	V	100	23	0	0	2.4	-1.0	-0.6
72402	00	V	100	22	0	0	3.5	-1.0	-2.2
72402	12	V	100	26	0	0	2.7	-1.8	-2.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
74494	00	V	100	24	0	0	4.0	-0.7	-0.6
74494	12	V	100	25	0	0	4.0	0.0	-0.8
78016	00	V	100	17	0	0	4.4	-2.8	-0.8
78016	12	V	100	18	0	0	2.6	0.0	-0.1

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:June, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	500	1	0	0	0.0	0.3	-0.5
DBLK	00	V	500	1	0	0	3.9	-2.2	0.2
DBLK	12	V	500	7	0	0	3.9	0.3	-0.4
EHOA	00	V	500	1	0	0	3.9	3.0	-0.3
EHOA	12	V	500	19	0	0	3.9	-1.9	0.2
FH	00	V	500	1	0	0	3.2	-1.6	-2.5
FNOR	00	V	500	8	0	0	3.2	0.3	-0.9
FNOR	12	V	500	7	0	0	3.2	-0.5	-0.4
FNOU	00	V	500	14	0	0	3.2	1.6	-0.4
FNOU	12	V	500	14	0	0	2.2	-0.3	-0.9
FNPH	00	V	500	13	0	0	2.3	-0.2	-1.0
FNPH	12	V	500	12	0	0	2.1	0.4	-2.6
FNRS	00	V	500	13	0	0	2.6	0.0	-0.7
FNRS	12	V	500	10	0	10	2.2	-0.4	-1.3
GACA	00	V	500	27	0	0	4.7	0.3	-0.2
GACA	12	V	500	28	0	0	2.6	-0.1	-0.2
JBOA	00	V	500	1	0	0	2.2	-0.1	0.7
JDWX	00	V	500	1	0	0	2.4	0.2	-2.5
LDWR	00	V	500	30	0	0	2.4	0.2	0.1
LDWR	12	V	500	27	0	0	3.9	-0.1	-0.9
ONRS	00	V	500	1	0	100	3.1	-0.8	-0.2
OXVH2	00	V	500	20	0	0	3.1	-0.8	1.2
OXVH2	12	V	500	20	0	0	4.2	0.2	0.1
OXYH2	00	V	500	17	0	0	4.2	0.2	0.8
OXYH2	12	V	500	18	0	0	2.4	-1.4	0.6
SHIP	00	V	500	1	0	0	3.0	-2.8	0.5
SHIPAF	00	V	500	4	0	0	3.0	1.4	-1.0
SHIPAF	12	V	500	1	0	0	3.0	-0.9	4.3
SHIPS	00	V	500	3	0	0	3.0	0.5	1.1
SHIPS	12	V	500	1	0	0	3.0	0.4	0.9
V2GH	00	V	500	24	0	4	3.0	1.4	0.4
V2GH	12	V	500	23	0	0	3.3	-0.3	-0.8
V2LV	00	V	500	23	0	0	2.6	1.1	1.2
V2LV	12	V	500	24	0	4	2.1	0.4	-0.3
V2LX	00	V	500	26	0	0	2.3	0.4	-0.2
V2LX	12	V	500	23	0	0	2.9	-0.3	-0.4
03953	00	V	500	30	0	0	3.5	0.3	-0.4
03953	12	V	500	30	0	0	2.3	-0.8	-0.5
04018	00	V	500	28	0	0	2.3	0.6	-0.4
04018	12	V	500	30	0	0	2.4	0.9	-0.4
04220	00	V	500	25	0	0	5.4	0.9	0.4
04220	12	V	500	29	0	0	3.5	0.4	0.3
04270	00	V	500	30	0	0	4.0	-0.9	0.6
04270	12	V	500	28	0	0	4.1	-0.4	0.8
04339	00	V	500	27	0	0	3.1	0.2	0.9
04339	12	V	500	30	0	0	2.9	1.1	0.1
04360	00	V	500	29	0	0	3.8	0.3	0.7
04360	12	V	500	30	0	0	2.6	-0.9	0.4
08001	00	V	500	27	0	0	2.9	0.9	-0.1
08001	12	V	500	29	0	0	2.3	-1.5	-0.5
08508	00	V	500	29	0	0	2.5	0.4	0.5
08508	12	V	500	30	0	0	2.0	1.0	0.4
08594	00	V	500	25	0	0	3.2	-0.3	0.1
08594	12	V	500	28	0	0	2.3	0.0	-0.4
60020	00	V	500	30	0	0	2.5	0.2	0.1
60020	12	V	500	30	0	0	3.1	0.0	-1.1
71600	00	V	500	28	0	0	8.3	0.4	-0.7
71600	12	V	500	28	0	0	3.1	0.5	0.6
72201	00	V	500	25	0	0	2.6	0.7	-0.8
72201	12	V	500	26	0	0	2.8	-0.7	-1.6

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72402	00	V	500	23	0	0	3.1	-0.4	0.6
72402	12	V	500	28	0	0	2.3	-1.2	1.9
74494	00	V	500	26	0	0	6.1	-0.6	-0.4
74494	12	V	500	27	0	0	2.7	-0.1	1.2
78016	00	V	500	17	0	0	4.4	0.1	0.6
78016	12	V	500	17	0	0	2.3	0.0	1.0

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed $m\ s^{-1}$
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45